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Volume 48

VOLUME

Number 6

48 - 49

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# Dominion Medical Monthly

And Ontario Medical Journal

Vol. XLVIII.

TORONTO, JANUARY, 1917

No. 1

## Original Articles

### THE PROTEIN POISON IN IMMUNITY AND DISEASE\*

BY VICTOR C. VAUGHAN, M.D.

Professor of Hygiene and Physiologic-Chemistry, University of Michigan,  
Ann Arbor, Mich.

Members of the Toronto Academy of Medicine, Gentlemen: I regard the invitation to address you a great honor, and I hope that my acceptance may not be wholly without profit to you, and I can assure you that it is a great pleasure to me.

Much of my research work has been devoted to a study of the chemistry of bacteria. I have not succeeded in exhausting this field, and it is probable that I have falsely estimated even the meagre results which I have obtained, but I offer my contribution with the hope that it may induce others to enrich it. As my purpose in the start was to study the chemistry of bacterial cellular substance, my first task was to secure this material in large amounts, and fairly free from contamination. After many failures, I succeeded in doing this by means of my tanks for massive cultures, the construction and operation of which I will demonstrate by slides at the close of the hour. I have been able to obtain this material in satisfactory quantity and free from contamination.

It is generally assumed that bacteria are low forms of vegetable life. If cellulose be essential to vegetable cells, none of the bacteria which we have studied can be classed as vegetable organisms, since none contain cellulose. I would not classify bacteria among animal organisms, but would place them in a group by themselves. I have designated them as particulate proteins. We have found two carbohydrates in bacterial cellular substance. One is certainly a constituent of the nucleic acid group, while the other seems to be a chitin-like substance. Bacterial cells yield nucleic acid, and on disruption the xanthin bases are obtained. The

\*Read before the Academy of Medicine, Toronto, 7th December, 1916.

most bulky constituent of bacterial cells are proteins, which yield amino and diamino acids on cleavage. Different species yield these split products in different proportions just as other unlike proteins do.

Because bacteria are simple morphologically, it has been assumed that they are also simple chemically. This assumption is not borne out by our studies. We have found bacterial cells, or the material of which they are composed, made up of molecules quite as complicated in chemical structure as are the cells of the animal body.

We found that when the cellular substance of pathogenic bacteria is split by the action of dilute alkali in absolute alcohol, a soluble poison is set free. Later, we found that the same or similar poisons may be obtained by the same method from all proteins, whether from pathogenic or non-pathogenic bacteria, also from vegetable and animal proteins. So far no true protein has been found which does not yield a poisonous group when split with dilute alkali in absolute alcohol. This active substance I have designated as the protein poison. Its exact chemical constitution is not yet known, but it gives the Biuret and Millon tests, and for this reason would be classed as a protein. It does not contain a carbohydrate group. The following statements may be made concerning the protein poison: (1) It exists in all natural proteins. (2) One gram of casein will yield enough of this poison to kill eight hundred guinea-pigs when injected intravenously. (3) The protein poison is not histamin, nor a cholin derivative, but is a cleavage product of normal proteins, bacterial, vegetable, or animal. (4) It may be prepared from the tissues and organs of exsanguined animals and is equally poisonous to homologous and heterologous animals. (5) In the purest forms yet obtained, it kills guinea-pigs of from 200 to 300 g. body weight in doses of 0.2 mg. given intravenously. When given intravenously it is about twenty-five times as poisonous to guinea-pigs as to rabbits in proportion to body weight, but when given intraperitoneally it is equally poisonous to these animals in proportion to body weight. (6) While the protein poisons from different sources are grossly alike in action, there are differences. The poison obtained from animal tissues hastens the clotting of blood *in vivo* in the guinea-pig, rabbit and dog, while that from casein retards or wholly prevents the clotting of dog's blood. All the protein poisons tested inhibit the clotting of blood from the guinea-pig, rabbit and dog when added *in vitro* in certain proportions. (7) The action of the protein poison is

similar to that of peptone, but the two are not identical. Peptone does not inhibit the clotting of blood in vitro, whatever the proportion. (8) When proteins are cleaved in the production of the poison, both fragments give the biuret test, but the poisonous protein in much higher dilution than the non-poisonous part. This shows that the proteins and their fragments contain acid amid and other substituted amid groups and that the products have not been deamidized in the cleavage. (9) Unbroken proteins and their split products give the xanthoproteic test, the poison in higher dilution than the unbroken protein or the non-poisonous part, indicating that all contain benzin nuclei, which are concentrated in the poisonous part. (10) Unbroken proteins and their poisonous fragments give the Millon test, while the non-poisonous part does not. This indicates that all the monohydroxybenzin nuclei are concentrated in the poisonous portion. (11) Unbroken proteins and their non-poisonous fragments show the presence of carbohydrate by their response to the Molisch test, while the poisonous fragment contains no carbohydrate. I have given these details in order to show that the protein poison is a true cleavage product from the protein molecule.

The protein poison slowly diffuses through animal membranes, but is not poisonous when given by mouth except in large amount. The digestive juices break it into the inert amino acids.

In order to understand the part that the protein poison plays in infection we may follow some experiments: (1) A guinea-pig receives intraperitoneally a fatal quantity of a living culture of the colon bacillus. For a period, which varies according to the size and virulence of the dose from eight to twelve hours, the animal shows no effect. It is in no way distinguishable in its behavior from its fellows. This corresponds to the period of incubation in the infectious diseases. During this time the micro-organisms are multiplying in the animal with great rapidity, and still the animal is not visibly disturbed. At the expiration of this period, the animal plainly passes into an abnormal state. It no longer eats. Its coat becomes rough. Its temperature begins to fall. Pain is elicited by pressure on the abdomen. When the animal dies, an extensive, bloody peritonitis is found.

A second animal is treated with an intra-abdominal injection of a fatal dose of the dead cellular substance of the same bacillus. With the exception of the fact that the period of incubation is reduced several hours—frequently to half the time—the symptoms and the lesions are exactly the same as in the animal inoculated with the living organism.

A third animal is treated with an intra-abdominal injection of the soluble protein poison obtained from the cellular substance of the colon bacillus. In this animal there is no period of incubation. Within a few minutes the animal is sick and its temperature begins to fall, and continues to do so until death, which usually occurs within thirty minutes after the injection.

My interpretation of these observations is as follows: In the animal inoculated with the living organism, the period of incubation is the time necessary for the development of two functions. The first of these is the multiplication of the micro-organism. The amount of living bacilli injected—provided it is the minimum fatal dose—is not the fatal dose, but they multiply until the fatal dose is reached. The second function developed during the period of incubation consists in the sensitization of the body cells and the development of a ferment which splits up the bacterial cellular substance with the consequent liberation of the protein poison, and it is this poison which kills the animal. In the second animal, the one treated with the dead cells, there is no multiplication of the organism, and the only function developed during the period of incubation is the elaboration by the body cells of the ferment, which splits up the bacterial cells and liberates the protein poison. Again, it is the protein which kills. In the third animal, the one treated with the soluble poison, there is no period of incubation, since both functions characteristic of this period when the living bacillus has been used, have already been developed in vitro. The organism has been grown and split up artificially. Inasmuch as there are no lesions in the third animal, I conclude that the lesions result from the reaction between the bacterial and the body cells.

During the period of incubation of an infectious disease, the invading organism supplies the ferment, the simple nitrogenous constituents of the animal body—both simple proteins and amino acids—constitute the substrate, the process is synthetic and constructive, body proteins are converted into more complex bacterial proteins, no poison is liberated, and consequently no symptoms develop.

During the active progress of an infectious disease, the body cells supply the ferment, the bacterial proteins constitute the substrate, the process is analytic and destructive, a poison is liberated and the symptoms and lesions of the disease develop, while life is placed in jeopardy.

This might be stated differently as follows: It is not directly the growth and multiplication of bacteria in the animal body

which cause the symptoms and lesions of the infectious diseases, but rather these result from the destruction of the bacteria by the body cells. This idea is not a new one, for I find that it was developed by Gannaleia as a result of large experimentation as long ago as 1888.

The difference between a pathogenic and a non-pathogenic bacterium does not depend upon the capability of the organism to develop a poison, because all proteins contain a poisonous group. Before a given bacterium can be pathogenic to a given animal it must be able to feed upon the animal body and at the same time the body cells must be incapable for the time of feeding on it. If this be true, the dead cellular substance of a given bacterium must be highly poisonous to an animal which is highly immune to that bacterium. I have found this to be true in a general way. With guinea-pigs the most highly poisonous bacterial cellular substance which I have found is the prodigiosus. I explain this on the ground that the normal ferments of the body cells of the guinea-pig quickly and completely disrupt the cell substance of the prodigiosus. This is the reason why this animal is immune to infection with this bacillus. The cells of this bacillus, which first find their way into a guinea-pig's body, are destroyed by the body cells, and there is no opportunity for growth and infection. The amount of the protein poison set free in this process is not sufficient to have any effect on the animal. For exactly like reason a relatively small amount of the dead cellular substance injected into the guinea-pig kills. The foreign cells are immediately and completely disrupted with the liberation of the protein poison, and in this case it is sufficient to kill the animal. On the other hand, the guinea-pig is highly susceptible to the bacillus tuberculosis because the ferments of the body cells have no destructive action on this organism. When the bacillus, even in small number, is injected in this animal, it meets with no adverse condition and infection proceeds. For like reason even large amounts of dead tubercle bacilli are borne by guinea-pigs. The above facts may be stated apparently paradoxically as follows: The dead cellular substance of a bacterium to which an animal is highly immune kills that animal when injected in relatively small amount. The dead cellular substance of a bacterium to which an animal is highly susceptible is borne by that animal in relatively large amount. I have found that one part of the cellular substance of the prodigiosus to one hundred thousand parts of body weight kills guinea-pigs when injected intraperitoneally, while one thousand times this amount of the cellular

substance of the bacillus tuberculosis has no immediate effect on the animal. I do not claim that in these statements I am enunciating any universal truth. The nature of immunity is complicated and many factors are involved. I have no doubt that future and more extended study will lead to modifications of these statements.

Both bacterial and body cells, like all living things, may be trained, certain functions may be intensified or weakened. Bacteria may be increased in circulence or they may be attenuated. Likewise, functions normally dormant in body cells may be developed. Unorganized protein bodies, such as egg-white, and the constituents of blood serum contain a poison group. A single injection of one of these into an animal, man or guinea-pig, is without effect, while a second injection, after a proper interval, may even kill. This phenomenon, known as anaphylaxis, was at first considered antipodal to immunity, but closer study has shown that both are due to like training of body cells. In vaccination against smallpox or typhoid fever we train the body cells to destroy the specific viruses of these diseases. Later, when exposure to one of these diseases occurs, the virus is destroyed as soon as it enters the body and before it has increased to a dangerous amount and immunity has been secured. In like manner the first injection of serum develops in the body cells the function of disrupting the serum proteins, and a second injection in large amount liberates a harmful dose of the poison. If the second dose be small, the ferment, which seems to be active only in *statu nascendi*, is exhausted, and then larger doses may be given. In this way we have learned to avoid the danger of anaphylactic shock in the treatment of diphtheria with antitoxin.

I have been interested in the effect of the protein poison on body temperature, and this matter has been studied in my own laboratory and elsewhere. In small doses the protein poison elevates the temperature, while in larger amounts it depresses it. I have quite convinced myself at least that the fever of the infectious diseases is due to the parenteral digestion of the bacterial proteins. Fever of any desired type may be induced in animals by the parenteral introduction of a foreign protein. With egg-white one can induce in rabbits, by half-hour injections of so small an amount as 0.05 c.c., an acute fever with the temperature running to 107 deg. F. in a few hours and terminating fatally. By varying the amounts and the intervals between doses, one can establish an intermittent, a remittent or a continued fever. The

last mentioned may be carried through weeks and will present a chart which cannot be distinguished from one of typhoid fever.

I can state quite positively that the protein poison is not a toxin in the sense that an antibody can be induced in animals by repeated sublethal doses. I have used many animals in attempts to secure an antibody, but invariably without success. It is true that a certain degree of tolerance to the poison can be easily induced, but I have never been able to carry this to any high degree, and attempts to produce an antibody have been wholly negative. It is a poison and not a toxin.

There is no indication that the protein poison has any specific effect upon phagocytosis. It must be evident to all that phagocytic protection or immunity is much more protective to the animal body than direct disruption of the invading organism, with the liberation of the protein poison. In fact, the greatest disaster that could happen to a patient in the height of an infectious disease would be the sudden and complete disruption of all the bacteria in his body. While, on the other hand, the engulfment of these bacteria by phagocytes would protect the body against the protein poison.

The specific groups of the protein molecules are in the non-poisonous fragment, as the molecule is disrupted by my method. For instance, guinea-pigs are so sensitized by treatment with the non-poisonous part of the cellular substance of the tubercle bacillus, that when a subsequent injection of a relatively large amount of the unbroken tubercle protein is made, the animal is seriously affected. Its temperature falls, and it may die. Repeated treatments of guinea-pigs and rabbits with the non-poisonous cleavage product from the typhoid bacillus render these animals immune to subsequent inoculations with as many as four times the amount of the living organism necessary to kill controls. My interpretation of these observations is that the non-poisonous portions of the disrupted bacterial proteins sensitize the body cells, and when the living bacilli are subsequently injected the ferment of the trained body cells disrupt the living organisms immediately and before they can multiply and establish a true infection. On this theory, it is easy to understand why the degree of immunity secured is limited, for as soon as the amount of bacterial substance injected becomes large enough to furnish a fatal dose of the poison, death results. It follows, therefore, that while my work along this line has been of scientific interest, it has led to no practical results in the treatment of the infectious diseases.

I do think that this work has thrown some light upon the relation between sensitization, or so-called anaphylaxis, and bacterial immunity. It must be evident to all that my work is in no way concerned with toxins, antitoxins and toxin immunity. My idea or theory concerning protein sensitization is that certain body cells are so modified in their chemical structure as a result of the first introduction of a foreign protein parenterally that they elaborate a wholly new or a highly modified proteolytic ferment, which digests that protein when reintroduced, and in doing so liberates the protein poison. According to this theory in infectious diseases the body cells pour out this specific ferment and the symptoms and lesions of the disease result from the destructive action of these ferments on the invading organisms. Therefore, the most rational treatment of the systemic infectious diseases, such as typhoid fever, consists in the employment of those procedures which best regulate and retard the bacterial disruption and the subsequent liberation of the protein poison. Such treatment is best exemplified in the proper use of cold baths in the treatment of typhoid fever.

I can easily understand how vaccine treatment may be of value in the treatment of local infection, for it gives opportunity for the sensitization of body cells in general and brings greater strength to bear on the limited number of bacteria restricted to certain localities. But how vaccine therapy can be of value in systemic infections or how tuberculin can be of benefit in even moderately advanced pulmonary tuberculosis is beyond my understanding. Every lesson that I have learned in my experimental studies, if I have properly interpreted my own work, leads me to conclude that such treatment has no adequate justification in either theory or practice.

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### PNEUMONIA—SUCCESSFUL TREATMENT

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BY A. P. SHIP, M.D., MONTREAL, QUE.

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Believing that it is desirable to report histories and records of cases treated with any new form of treatment, so the product may the sooner take its proper place in medical therapy, I am submitting the following as being illustrative of my use of pneumonia phylacogen.

Mr. J. G.—Age 26 years. Italian. Occupation, boiler fireman. Married.

*History.*—I was called to see this patient at 11 a.m., Jan. 3rd, 1916. He complained of cough, pain in right side of chest and back, experienced great difficulty in breathing, was expectorating bloody sputum. He reported having been this way for six days.

On Jan. 1st he called a physician, who diagnosed the case as grippa. The patient's occupation requires a three-hour stretch of firing. On one occasion he became exceptionally warm, and, perspiring freely, slipped out into the corridor, near an open window, to cool off. The next morning, on awakening, he was seized with a violent chill, which necessitated his remaining in bed.

*Examination of patient. Physical signs.*—Deficient expansion over right side with vocal fremitus increased over affected entire side.

*Percussion.*—The note was hyper-resonant.

*Auscultation.*—Fine crepitant rales at the end of full inspiration. Marked dyspnea. Temperature 104. Pulse 110. Respiration 33. Sputum expectorated of a rusty translucent and tenacious character.

*Diagnosis.*—Lobar pneumonia (right).

*Prognosis.*—Grave.

I ordered immediate removal to the hospital, as surroundings were unfavorable to the proper care of the patient. The family objected to this, so ordered stimulants given and ventilation made the best possible under the insanitary surroundings.

On Jan. 5th they consented to his removal to the hospital. I must admit it was somewhat late to give pneumonia phylacogen a fair trial; still, I am firmly of the opinion that he has the phylacogen to thank for undoubtedly saving his life. The treatment was carried out as per the following chart. He was discharged Jan. 25th.

#### SYNOPSIS FROM MONTREAL HOMEOPATHIC HOSPITAL.

Mr. J. G. Male. Semi-private.

Jan. 5th, 1916.—Complaining of pain in back and right side of chest. Burn on back and right side due to careless application of hot-water bottle prior to coming into the institution. Mustard applied to seat of pain. Stimulants given. Patient slept from 10-12.

Jan. 6th, 1916.—Slept from 1 to 4 a.m. Seems more comfortable this morning. Respiration labored. Anti-tussine applied to right side and chest. Oxygen administered for two

minutes frequently. Perspiring freely. Camphor given hypodermically. Salines administered in the evening.

*Jan. 7th, 1916.*—Continued use of oxygen, five minutes at a time, also hypodermies of camphor and quinine and urea hydrochloride. Patient delirious, picking at bedclothes.

*Jan. 8th, 1916.*—Patient showed signs of cyanosis. Stimulants and oxygen maintained. Saline enema 9.30 a.m. As a last resort pneumonia phylacogen 1-Cc., administered subcutaneously, followed by systemic reaction with chill of fifteen minutes' duration. Temperature 103, rose to 104.3. Pulse 120. Respiration 40. At 9.30 p.m., pneumonia phylacogen administered 1-Cc. subcutaneously. No reaction. Profuse perspiration. Quite cyanosed. Oxygen continued.

*Jan. 9th, 1916.*—Slept at short intervals. Stimulants continued, also oxygen. Pneumonia phylacogen given at noon,  $\frac{1}{2}$ -Cc. I. V. At 12.50 p.m., chill lasting 30 minutes. Temperature, immediately after chill, 105.2, dropping to 103.2, and patient perspiring freely. Evening temperature 101.2. Patient slightly improved.

*Jan. 10th, 1916.*—Slept nearly all night. Medication continued. At 12 noon, pneumonia phylacogen  $\frac{3}{4}$ -Cc., diluted with 1-Cc. distilled water, administered I. V. Reaction, chill lasting 20 minutes. Temperature ranging from 105.3 and dropped to 100.2. Free perspiration, and patient shows continued improvement.

*Jan. 11, 1916.*—Slept practically all night. Takes nourishment well. 11.30 a.m., 1-Cc. pneumonia phylacogen administered I. V. Chill of 25 minutes. Temperature 103.2, which dropped to 99.2. At midnight temperature 99. Pulse 76. Respiration 28.

*Jan. 12, 1916.*—11.30,  $1\frac{1}{2}$ -Cc. pneumonia phylacogen I. V. Chill of 20 minutes, followed with temperature 103.2, which dropped to 100 at 2 p.m., and later to 99. Patient fairly comfortable. Cough somewhat troublesome in the evening. Oxygen continued.

*Jan. 13th, 1916.*—Patient very bright this morning. Temperature 99. Pulse 80. Respiration 28.  $\frac{1}{2}$ -Cc. pneumonia phylacogen given, followed by chill of 35 minutes. Temperature going to 101.2, later dropping to normal. Patient coughing a great deal. Patient slept well.

*Jan. 14th, 1916.*—11 a.m.,  $1\frac{3}{4}$ -Cc. administered I. V., chill of 25 minutes. Temperature going to 102, and falling during the night to 98. Perspired freely; doing well.

*Jan. 15th, 1916.*—Put on light diet. Had good night, feeling very comfortable. Twelve, at noon, pneumonia phylacogen, 1 $\frac{3}{4}$ -Ce. I. V. No chill, but perspired freely for two hours, continued improvement.

*Jan. 16th, 1916.*—Slept well all night. Very comfortable. Continued hypodermics of camphor and caffeine. 11.30, pneumonia phylacogen, 1 $\frac{3}{4}$ -Ce. I. V., followed by chill of 20 minutes. Temperature during chill 100, afterwards dropping to 97. Perspired profusely. Very comfortable in the evening.

*Jan. 17th, 1916.*—Twelve noon, pneumonia phylacogen, 1 $\frac{3}{4}$ -Ce. given. No reaction. Had very comfortable day. Phylacogen discontinued. Continued improvement. Patient being given sponge alcohol rubs daily.

*Jan. 25th, 1916.*—Patient discharged, well.

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## MILK AND COMMUNICABLE DISEASE \*

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BY LINSLY R. WILLIAMS, M.D.

Deputy Commissioner of Health, State Department of Health.

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An outbreak of communicable disease was traced to the consumption of raw milk as far back as 1854. Since that time there has been a large number of epidemics traced to the consumption of raw milk, and in each instance it was found that there was, or had been, a case of specific communicable disease upon the dairy farm where the milk was produced or among employees handling the milk. There is now a large amount of literature on the subject of milk-borne diseases and numbers of epidemics of septic sore throat, typhoid fever, diphtheria and scarlet fever have been found to be due to the use of raw milk which had been infected with the organisms of these diseases.

The work of the British Royal Commission on the Study of Bovine Tuberculosis and that of Theobald Smith, Ravenel and Park, in this country, have conclusively demonstrated the fact that bovine tuberculosis may be transmitted to man, and that from 5 per cent. to 15 per cent. of all cases of tuberculosis in children are of bovine origin. During the past one and one-half years there have been reported to the State Department of Health at

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\*Read at the Annual Conference of New York State Sanitary Officers, Saratoga Springs, June, 1915. From the Monthly Bulletin, New York State Department of Health.

Albany over 800 cases of communicable diseases, causing 37 deaths, which were due to outbreaks of scarlet fever, septic sore throat, diphtheria and typhoid fever. In each epidemic the cases occurred largely upon the milk route of one dairy. A careful study of these epidemics has shown in each instance that the cause was due to the presence of an individual affected with one of these diseases upon a dairy farm supplying the milk to the persons who became ill of the disease.

The use of raw milk has not generally been considered in this country as a source of danger, but for many years physicians in Continental Europe have regularly recommended the use of boiled milk for the feeding of children and infants. About twenty odd years ago there was introduced into this country a change in infant feeding caused by the boiling or pasteurization of milk. As time wore on and the demand for the use of this milk became more widespread, physicians reported unfortunate results, and a few cases of scurvy were described among the many thousands of children using it.

With the increasing difficulties of introducing an adequate supply of fresh milk, several of the larger milk dealers in our great cities conceived the idea of heating their milk in order that they might keep it for a longer time. These dealers then began to pasteurize their milk. In the pasteurization of ten or more years ago it should be remembered that it was performed by what is known as the "flash system," which consists in rapidly passing milk over a heated coil raised to a temperature of 167 or more degrees Fahrenheit. When this system began to be more generally applied, objection was made to it by health boards and physicians, for the following reasons. The health boards objected because they felt that this would enable unscrupulous milk dealers to sterilize filthy and disease-infected milk; and that in milk which had been heated in this manner, the lactic acid bacteria would be destroyed, and that the milk, instead of souring, would become putrid and would be consumed without the consumer knowing that it had spoiled, as it would not have the characteristic sour taste. Physicians objected on the ground that the consumption of this milk by infants and children would result in large numbers of cases of scurvy. The opposition was nowhere greater than in the city of New York.

Six years ago the city of New York adopted the general chlorination of the entire water supply of the city. This did not produce the expected diminution in the amount of typhoid fever in the greater city, and a more thorough study of the cases re-

sulted in the discovery of several widespread epidemics upon the routes of one or more milkmen. By tracing this milk to its source, cases of typhoid fever and typhoid carriers were found upon the dairy farms which had infected nearly the entire milk supply of one or more dealers. These and other epidemics soon convinced the authorities of the city of New York of the importance of pasteurizing the entire milk supply of the city.

In making a study of the subject it was found that milk pasteurized by the flash system had a certain number of disadvantages. Some of the milk, in passing rapidly over the heated coil, soon formed a film which varied in thickness, so that in some places the stream of milk passing over the coil was subjected to varying degrees of heat. Careful examinations made showed that such a method of pasteurizing did not always destroy the pathogenic bacteria. Later investigation showed that such a high degree of heat was unnecessary in order to destroy all pathogenic bacteria, and it was ultimately found that a temperature of from 142°-145° Fahrenheit, if maintained for a period of thirty minutes would have this effect. Certain objections, however, are still made to pasteurization as follows:

1. Feeding of pasteurized milk to infants may cause scurvy.
2. Pasteurized milk has a stale, flat or boiled taste.
3. Pasteurization of milk diminishes the amount of cream in a bottle of milk.
4. Pasteurization increases the cost of milk.
5. Pasteurization devitalizes the milk and reduces its food value.

Each and every one of these objections can be readily met.

The mortality records of the city of New York, where over 90 per cent. of the milk supply has been pasteurized by the holding method, show no increase in the number of deaths from scurvy. Even if there may be a possible increase in the number of cases of scurvy it is fairly generally admitted by children's specialists that the danger from milk-borne diseases is far greater than the danger of scurvy, and that by the proper administration of orange juice to infants beginning at the sixth month or earlier, the occurrence of scurvy will be prevented.

The second objection as to the change in taste of pasteurized milk has a certain foundation, because if milk be heated to above 155 degrees Fahrenheit, it will have a somewhat boiled or flat taste, but if milk be properly pasteurized within the temperature limits now usually prescribed by cities and states, there will be

no alteration in the taste. Simple experiments will readily demonstrate this. Many persons have made the test of sampling first raw, and then pasteurized, milk, and have not been able to distinguish between them. Pasteurization properly performed produces absolutely no change in taste. If there is a change in taste it is always found that the milk has been heated to a higher temperature than is necessary.

It has been stated by some observers that there is a diminution in the amount of cream when milk is pasteurized. This complaint is made by the consumer. A complete series of experiments carried out in the laboratory of the New York City Department of Health, by Kilbourne, showed that there was a diminution in the volume of butter fat which rose to the surface in milk which had been heated to a temperature higher than is necessary through faulty pasteurization, and that within certain limitations the higher the temperature to which the milk was heated the smaller the amount of cream which rose to the surface. But even at the higher temperature there is a diminution of only 10 per cent. in the amount of cream which rises. It should be definitely understood, however, that even though the cream line be diminished there is absolutely no diminution in the fat content of the milk, and, therefore, no diminution in the nutritive value.

It must be admitted that the cost of machinery and the cost of operating a pasteurizing plant is considerable, but the actual cost is far less than one cent per quart of milk, and in some communities in New York State properly pasteurized milk is now being sold at the same rate as the raw product, and the concerns selling this milk are making money from the sale of their product.

A number of experiments have been made in feeding pasteurized milk to young, growing animals. It has been found that calves and other smaller animals, when fed on pasteurized milk, will thrive just as well and gain in weight just as steadily as when fed upon the raw product. An experiment carried on some years ago under the direction of Drs. Park and Holt, of New York City, in the feeding of infants, showed that infants fed at the breast had fewer cases of illness amongst them and did better than infants who were fed upon properly modified milk. In two groups of infants fed on modified raw milk and modified pasteurized milk there were fewer cases of diarrhea and fewer deaths among those fed on pasteurized modified milk than among those fed on raw modified milk.

Another interesting fact is that the cities of New York, Boston and Chicago have for from three to five years had a large majority

of their milk supply pasteurized, and during this period there has been a large diminution in infant mortality and in the number of deaths from diarrheal diseases.

-It would seem, therefore, that the chief objection to the pasteurization of milk is that it is a change from the long continued habit of the use of raw milk. Although there may be a slight increase in the cost of milk that has been pasteurized, yet the health insurance that is given in preventing a large number of epidemics of milk-borne infectious diseases is far more important than the small sum paid for this protection.

It must be said, however, that there are still a number of medical men and health officers who contend that pasteurized milk is nothing more than cooked filth, but sanitarians and health officers should insist that pasteurized milk must be pasteurized clean milk and that every precaution be taken to insure the milk being pasteurized in clean containers. The method of pasteurization should be supervised; for if the milk is improperly pasteurized complaints will come, and they will be made against the whole process of pasteurization. But if pasteurization is carried on intelligently and under the direction of qualified health officers, it will give the quality of milk that the people demand, and will result in a diminution in the amount of communicable diseases.

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### FLY POISONS \*

#### STUDIES ON SODIUM SALICYLATE, A NEW MUSCICIDE, AND ON THE USE OF FORMALDEHYDE.

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By EARLE B. PHELPS, Professor of Chemistry, and ALBERT F.  
STEVENSON, Sanitary Chemist, United States  
Public Health Service.

(*A digest of a forthcoming Bulletin of the Hygienic Laboratory.*)

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In the general public health campaign for the eradication of the fly not the least important of the many destructive measures available are those capable of being employed within the household. These constitute in a measure the last line of defence and are aimed against those flies, relatively few in number, which have escaped such general public measures as the elimination of breed-

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\*United States Public Health Reports.

ing places, and that most important individual effort, effective screening. These measures, even when most successful, have not heretofore given entire protection and it has been necessary to supplement them with one or another form of destruction within the household itself.

For this purpose various devices are available, comprising, in general, poisoning, trapping and swatting. Each of these various methods, while reasonably effective, has distinct disadvantages. The trapping of flies either in mechanical traps or upon sticky preparations, is an undesirable procedure by reason of its unsightliness and other unpleasant aspects. The practice of swatting, despite the faulty biological reasoning so often urged by its enthusiastic supporters, whereby the effectiveness of a single swat is multiplied many million fold, certainly does possess the advantage of a very definite 100 per cent. efficiency. Its disadvantage lies chiefly in the effort and earnestness which it demands, factors which are apt to be affected by rising temperature inversely as the multiplication rate among the flies.

The poisoning of flies seems to possess, all told, the fewest disadvantages in proportion to its advantages, and were it not for the single fact that poisonous fly paper and preparations are quite generally known to contain arsenic, there is no doubt that their use would be greatly extended. That such use is attended with no small danger, especially among young children, has been freely commented upon in the medical and other literature of the past few years, and definite evidence of harmful and even fatal results is accumulating.

It has seemed quite desirable, therefore, to investigate this subject with special reference to the selection of some other substances which under ordinary conditions of use and of accidental or ignorant misuse would not be so dangerous to the health and lives of children and which at the same time would serve equally well, or better, for the destruction of flies. To this end, experiments have been conducted at the Hygienic Laboratory with a considerable number of possible muscicides.

Of the many substances investigated only two have been found to possess the requisite properties of safety and efficiency, i.e., formaldehyde and sodium salicylate.

Formaldehyde, in solutions of various strengths, has been recommended from time to time for this purpose. It has been found in the present study that the best results are obtained with a solution containing 1 per cent. of the formaldehyde, or  $2\frac{1}{2}$  per

cent. of the 40 per cent. solution, which is the form in which it is usually sold. Concentrations greater or less than this are less efficient, although the efficiency does not fall off very rapidly down to a half per cent. solution. Solutions stronger than 1 per cent. apparently repel the flies by their odor, although there is evidence that the odor of the 1 per cent. solution is slightly attractive—that is, the flies prefer it to plain water. It is probable that the unsatisfactory results that have sometimes followed the use of this material have been due to the use of solutions of improper strength. A valuable property of this muscicide brought out by this study is that, whereas at summer temperature it is somewhat less efficient than commercial arsenic preparations, its loss of efficiency with decreasing temperature is much less and its relative value, therefore, correspondingly greater. During the cooler days of fall, at which time the greatest difficulty is experienced in keeping the flies out of the home, this preparation compares most favorably with the arsenic papers.

Sodium salicylate has not, so far as we are aware, been previously recommended as a muscicide. In 1 per cent. solution it is slightly less efficient than the formaldehyde, but it possesses certain marked advantages, especially for household use. It is a less objectionable substance to have about the house in concentrated form, is a solid which does not lose its strength, and in the preparation of the solution it is not of so great importance that the exact strength recommended be adhered to. Furthermore, it lends itself to preparation and sale in the form of papers in much the same way that arsenic papers are now put up. Like formaldehyde, it does not lose efficiency at lower temperatures nearly so rapidly as do the arsenic preparations.

For household use these solutions may be prepared by the addition of three teaspoonfuls of either the 40 per cent. solution of formaldehyde found on the market or the powdered sodium salicylate to a pint of water. Nearly fill a glass tumbler with the solution, place over this a piece of blotting paper cut to circular form and somewhat larger in diameter than the tumbler, and over this invert a saucer. Invert the whole device and insert a match or toothpick under the edge of the tumbler to allow access of air. The blotting paper will remain in the proper moist condition until the entire contents of the tumbler have been used and the strength of the formaldehyde solution will be maintained. A little sugar sprinkled upon the paper will increase the attractiveness of the poison for the flies. Either of these preparations may be safely

used where there are young children, although the addition of the sugar is not recommended in such cases. The formaldehyde, unlike arsenic preparations, has an unpleasant taste, and in the concentrations recommended a harmful dose could not conceivably be taken. No bad effects would result from the consumption of a considerable quantity of the salicylate.

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### HOSPITAL ACCOMMODATION IN SASKATCHEWAN

During the past few months the Provincial Bureau of Public Health has been taking a deep interest in the matter of hospital provision for small urban centres and wide stretching rural municipalities, and D. G. Tuckwell, formerly Mayor of Lloydminster, where the first rural municipal hospital was put into operation, has been engaged in explaining to the municipalities interested the working of the principle as embodied in The Hospital Act, passed at the last session of the Legislature.

The system provides that two or more municipalities may co-operate for the erection and maintenance of hospitals to accommodate their ratepayers during sickness. The Act allows for the imposition of a two-mill rate, but those who have given this matter their closest attention, contend that in the majority of cases not a two-mill rate, but possibly less than one mill will be sufficient to meet the requirements under normal conditions. In Lloydminster, where the system has been in operation for nearly four years, a cent an acre under the old system of assessment was found ample for all their needs.

That the matter has aroused widespread interest is evident from the number of municipalities which have signified their intention of submitting by-laws to the ratepayers at the annual election, authorizing their councils to proceed with the appointment of Hospital Boards and a flood of correspondence has poured into the office of the Commissioner of Public Health during the past few months, seeking information and advice upon this subject.

At such widely separated places as Assiniboia, Shaunavon, Gull Lake, Hughton, Eston, Filmore, Wadena, Elfros, Wynyard, Salteoats, Vonda, Prussia, Kindersley, Kerrobert, Wilkie, Biggar, Scott, Edam, Puncheby and numerous other centres, steps have already been taken for the introduction of this system, whilst at several places the necessary by-laws have already been submitted and received in every case the assent of the ratepayers.

# Dominion Medical Monthly

And Ontario Medical Journal

EDITED BY

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Published on the 20th of each month for the succeeding month. Address all Communications and make all Cheques, Post Office Orders and Postal Notes payable to the Publisher, GEORGE ELLIOTT, 219 Spadina Road, Toronto, Canada.

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Vol. XLVIII.

TORONTO, JANUARY, 1917

No. 1

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## COMMENT FROM MONTH TO MONTH

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The Pension Commissioners for Canada are desirous of bringing certain matters to the direct attention of the medical profession. Our readers are asked to read the communication on another page.

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The Canadian Medical Association has decided to hold an annual meeting in 1917, in Montreal. The dates selected are very near to those of the Ontario Medical Association, in Toronto, viz., about two weeks apart, both in the month of June. It may be that this will have no effect in the attendance at either.

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National Service has been inaugurated in Canada for every man between the ages of 16 and 65 years. The important questions on the card are: (23) Would you be willing to change your present work for other necessary work at the same pay during the war? (24) Are you willing, if your railway fare is paid, to leave where you now live, and go to some other place in Canada to do such work? As some platform speakers have derided and

scorched the young men who have not enlisted, this National Service system will serve the purpose of finding out where all stand, and if there are any "slackers" in those beyond military age.

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**The Antitoxin Laboratory** of the University of Toronto has recently received a gift from Colonel A. E. Gooderham, Toronto, of a farm of fifty acres, within twenty miles of the city, on which have been erected model stables and laboratories for the work of the Antitoxin Laboratory. The value of the gift exceeds \$60,000. The Antitoxin Laboratory prepares all the public health biologic products, supplied free by the Provincial Board of Health of Ontario, including diphtheria and tetanus antitoxin, anti-meningitis serum, typhoid vaccine, the Pasteur treatment, and smallpox vaccine. It has also prepared all the typhoid vaccine used in the Canadian Expeditionary Forces, of which it has supplied over 400,000 doses. Dr. J. G. Fitzgerald is the director of the laboratory. Thus does the Ontario Government manifest to the profession and to the public that it ever has thought and work single to the good of the Ontario people.

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**The Provincial Secretary in the Ontario Government** is a man who comes into close relationship with very much which essentially concerns the profession of medicine. The departure of the Hon. Mr. Hanna, and the accession to the office of the Hon. Mr. Wm. David McPherson is, then, of no little moment to that profession. Mr. Hanna was looked upon as the most progressive man who ever held that portfolio, and he has a long list of excellent reforms to his credit. But Mr. McPherson will find that there is much yet to be done, especially in public health matters. Especially worthy of attention are the care of the feeble-minded of the province; the prevention of cancer; the social diseases; the prevention of the industrial and vocational diseases. In the latter there is pointedly a chance for the very best work. Canada altogether is far behind the other nations of the world in this regard. The occupational diseases can be largely prevented, for health-hazards exist in practically most of the industrial processes of the province. The Hon. Mr. McPherson brings to his office vigor, youth and an earnest desire to administer his department for the good of the people. The health of the industrial classes in Ontario should not much longer be overlooked.

**THE BOARD OF PENSION COMMISSIONERS FOR  
CANADA, OTTAWA**

Ottawa, December 18, 1916.

*To the Editor, Dominion Medical Monthly Journal, Toronto.*

Sir,—This letter is addressed to you in the hope of enlisting your assistance in a matter of some moment.

Members of the medical profession, civil and military, in Canada occupy a position of great responsibility since it is through them that the physical condition of Canadian soldiers is established; consequently, physicians and surgeons are constantly called upon to express their professional opinion concerning the physical condition of men, not only to decide their fitness for service, but also in connection with the awarding of pensions.

The responsibilities of the medical profession in this connection are, then, of great public importance. Unfortunately, it is evident that not all medical practitioners have fully realized the gravity of these responsibilities, added to their professional position by the war. There are instances in which medical men have made ill-considered statements in connection with applications for pensions, and a paragraph which appeared in *The Journal of the Canadian Medical Association* for November (page 1021) tells its own story. In that paragraph editorial comment was made upon a physician who had given a certificate, falsely stating that a soldier was suffering from tonsilitis, in order that his leave might be prolonged; the assertion was made that similar instances of unjustified certification were known and that the matter had been placed in the hands of the College of Physicians and Surgeons for the Province of Ontario.

There is no doubt but that physicians who have granted false certificates to soldiers have not given full consideration to the seriousness of their action. There is little doubt but that, as a rule, they either have been led away by a natural desire to assist a soldier in his attempt to obtain leave or pension, or that they have merely been careless and too willing to accept, without thorough investigation or examination, statements made to them.

Medical men must realize the responsibilities added to their position by the war. They must realize the effect which a false certificate may have in misleading those expending public moneys. No matter what the intention in issuing it may have been, the consequence of giving a false certificate concerning a soldier's

physical condition is always the same. If the certificate is acted upon the Government is defrauded.

If a physician issued a false certificate in good faith and without actual intention to assist in a fraud, he renders himself liable to the criticism of his colleagues. If a false certificate is given wilfully, a physician is not only liable to the condemnation of his fellows, but also to prosecution in the criminal court.

Public duty, professional integrity and personal interest, all unite in making it to the utmost desirable that a physician should always exercise the greatest care in signing statements concerning the physical condition of persons who require a certificate as to their physical condition for purposes connected with the naval or military services, or with the granting of pensions.

The Board of Pension Commissioners for Canada feels that you will do much towards assisting it in a proper administration of Canadian pensions, if you will be good enough to give publicity to the ideas expressed in the preceding paragraphs in an editorial in an approaching number of the DOMINION MEDICAL MONTHLY JOURNAL, which you direct.

In the event of your publishing an editorial statement on this matter may I ask that a copy of the number of the DOMINION MEDICAL MONTHLY JOURNAL in which it appears may be forwarded to the Board of Pension Commissioners for Canada, Ottawa.

I have the honor to be, Sir,

Your obedient servant,

J. D. TODD,

For the Board of Pension Commissioners.

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### CANADIAN RESEARCH BOARD'S WORK IS OUTLINED

An official statement by Sir George Foster outlines the programme decided upon by the National Scientific and Industrial Research Committee.

In order to do effective work it was found necessary to have someone give his whole time and service to the planning and direction, and the unanimous choice of the Advisory Council centred upon Dr. A. B. Macallum, of Toronto. Dr. Macallum is a graduate of Toronto University in Arts and Medicine; obtained his degree of Ph.D. at Johns Hopkins University, his LL.D. from Aberdeen University, his D.Sc. from both Yale and Trinity, Dublin. He is at present at the head of the Physiology and Biochemistry Department in the Faculty of Arts in the University of Toronto, and is president of the Royal Society of Canada. This

choice was approved by the Committee of Council, and Dr. Macallum, therefore, has been appointed chairman of the Advisory Council. He will remove in a short time to Ottawa and take complete charge of the work.

Mr. J. B. Challis, of the Dominion Water Power branch of the Department of the Interior, Ottawa, has volunteered his services for the time being as secretary of the Advisory Council, and will carry on the work under the direction of Dr. Macallum.

All the other members of the Council give their time and services as a contribution to the public service undertaken. A salary of \$10,000 a year will be paid to Dr. Macallum, whose whole time will be devoted to the work. The country thus gets the benefit of the advice and experience of the gentlemen named above, all of whom are men of attainments, of practical experience, of expert scientific knowledge, of business ability.

The first and very important work of the Advisory Council will be to outline its plans and mature the measures that commend themselves to their best judgment for consideration of the Committee of the Council. Once these are approved, and in so far as they are approved, it will become the business of the Council under the chairmanship of Dr. Macallum to supervise and carry out the measures adopted. In this way it is believed that an impetus can be given to the cause of scientific research in Canada which will prove of the greatest possible benefit to the industrial and producing interests of the country. All other progressive countries are devoting special attention at this time to this work, and with her immense natural resources and her water power facilities, there is every reason to believe Canada will be able, with the co-operation of business acumen, capital and scientific aid, to take her place with the other progressive nations of the world.

The plan adopted by the Government in its promotion of scientific and industrial research is to place the work under the direction of a sub-committee of the Privy Council, composed of the Ministers of Trade, Interior, Agriculture, Mines, Inland Revenue and Labor. There will be added to assist an Advisory Council already named, with Professor Macallum as chairman.

The plan of work is to ascertain and tabulate all agencies now carrying on research work. There will be noted the lines of research of each agency, and all these agencies will co-ordinate to induce co-operation. They will study all our problems of a scientific character. There will be a scientific study of our unused resources, the waste and by-products of farms, forest,

fisheries and industries, with a view of their utilization. They will also seek to add to the number of competent and trained research men for this work, and will keep the public informed of the results of the investigations. By this work it is expected to expand our development, utilize and conserve resources, and add to the wealth and prosperity of the country.

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### RULES FOR TYPHOID CARRIERS<sup>1</sup>

The following instructions for the guidance of typhoid carriers have been issued by the New York City Health Department:

1. You must not have anything to do with food or drink to be used by others, either in your business or at home. Don't go to the icebox or refrigerator. Don't hand anything at the table. Have your own plates, cups, glasses, spoons, forks, etc., separate from the others, and washed and kept for you alone. If you happen to leave any food or drink, it must be thrown out and not be used by others.
2. Every movement from your bowels not passed into a toilet flushed with water and connected with a sewer must be disinfected with some good disinfectant, such as chloride of lime or cresol, letting it stand for some minutes. Keep a supply of the disinfectant on hand for this purpose. When a toilet with running water is used, thoroughly clean the bowl daily.
3. After using the toilet wash your hands with plenty of soap and water. Do this every time. Dry your hands well. Do not let other people use your towel.
4. Do not have a movement of your bowels except at a regular toilet. Try not to use the toilet when away from home during the day. If you have only an out-door privy to use, keep it disinfected all the time with quick lime and screened from flies.
5. Keep yourself and everything about you very clean. Disinfect your underclothing before sending it to the laundry.
6. Every person with whom you live must be immunized against typhoid fever.
7. Keep the Department of Health informed of your whereabouts. Call for a personal talk and advice as to treatment or help in some other way. See that your stools are re-examined from time to time.

If there is a physician in attendance, these instructions are sent to him to be transmitted to his patient. If there is no physician in attendance, they are sent directly to the typhoid carrier.

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## News Items

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### AWARDED MILITARY CROSS.

Captain Henry Harold Argue, A.M.C.—He tended and dressed the wounded under heavy fire, displaying great courage and determination throughout.

Captain William Brown, A.M.C.—He tended and dressed the wounded continuously for forty-eight hours, under heavy fire. He displayed great courage and determination throughout the operations.

Captain Harold Wigmore, A.M.C.—He tended and dressed the wounded under heavy fire with great courage and determination.

Captain Kenneth Cooke, A.M.C.—He tended the wounded for two days and nights, under intense fire, with great gallantry and ability.

Captain Howard Brown Jeffs, A.M.C.—Although wounded himself, he attended the wounded under heavy fire, with great courage and determination. Later, being again wounded, he remained on duty until relieved.

Captain Victor Henry Kingsley Moorhouse, A.M.C.—He tended the wounded under very heavy fire, displaying great courage and determination throughout.

Captain Thomas Francis O'Hagan, A.M.C.—He rescued a wounded officer and five men under very heavy fire. Later, he tended the wounded in an advanced dressing station under very heavy fire. He displayed great courage and determination throughout.

Captain Alex. Harold Taylor, A.M.C.—He attended the wounded under very heavy fire with great courage and ability. He has on many previous occasions displayed great bravery.

Captain William Lawrence Whittemore, A.M.C.—Although wounded, he carried out his duties with great courage and determination. He has on many previous occasions displayed great gallantry.



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The Salvation Army Training School in North Toronto will be used as a hospital for returned soldiers.

The annual meeting of the Ontario Medical Association will be held in Toronto, May 31st to June 2nd, 1917.

Dr. A. D. Blackader, Montreal, has been appointed President of the Canadian Medical Association, which will meet in annual session for the first time since 1913, in Montreal, on the 13th, 14th and 15th of June.

The Executive Council of the Canadian Public Health Association met in Toronto December 23rd, and elected the following Executive Committee:—Drs. Joseph D. Page, Quebec, President; John G. Fitzgerald, Toronto, Secretary; Dr. George D. Porter, Toronto, Treasurer; and Drs. John W. S. McCullough, Toronto; Maurice M. Seymour, Regina, William H. Hattie, Halifax, N.S.

By the death of Dr. Andrew R. Gordon, Toronto loses one of its most widely-known and best esteemed physicians. Dr. Gordon, who held the rank of Lieutenant-Colonel, enlisted for overseas service with the University of Toronto Base Hospital, but had to return to Toronto shortly after reaching England. For a time he was consulting physician in the Exhibition Base Hospital.

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### HEALTH INSURANCE OF THE FUTURE

Every physician should familiarize himself with the agitation which is being vigorously conducted in various states toward the establishment of the system of caring for the sick, which is designated as health insurance. Already bills for the introduction of this system have been introduced in the Legislatures of Massachusetts, New Jersey and New York, while commissions for the establishment of such insurance have been appointed in Massachusetts and California. Recognizing the social value of health insurance and the necessity of a harmonious adjustment of the new contemplated relations between physicians and laymen, the American Medical Association has organized a Committee of Social Insurance, of which Dr. Alexander Lambert, of New York, is Chairman, and Dr. I. M. Rubinow, of Chicago, is Executive Secretary. The purpose of this committee is to familiarize the profession with the progress of the movement in the different states. The desirability of such information is obvious to any one who

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contemplates the far-reaching changes which may be experienced by the medical profession by the establishment of this contemplated health insurance.

This method of protecting the health of the mass of the community can be appreciated to a large extent by the citizens of those states which have already established industrial insurance. This new plan of health insurance will extend this method of protection to all manual workers or other employees earning less than \$100 per month. For the insurance worker it provides medical care and obstetrical aid at the wife's confinement. The funds for paying for services of physicians, drugs and other necessities will be obtained from three sources. A certain proportion will be derived from the employee, a second from the employer, and a third from the state. As a consequence, every member of the community will be entitled to adequate medical services, and the physician will be sure of compensation for his attentions. While the fee may seem small to the average attendant, there will be no uncertainty as to its collection. This plan is in a general way modeled after the system which has been in effect in England for a number of years. At first its enforcement met with general hostility on the part of the medical profession, but after its successful administration was demonstrated the physicians accepted the plan and it is reported to be satisfactory to all concerned in its practical application. The spirit of the times seems to favor the establishment of many new forms of social relations, among which this health insurance will surely meet with universal popular favor, after it has been duly discussed in different parts of the country. We recommend to our readers a careful consideration of this matter, so that they may be prepared to deal with it in an intelligent manner when brought before them.—*Northwest Medicine.*



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## Publisher's Department

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**TWO STRENGTHS OF PITUITRIN.**—As is well known to medical practitioners, Parke, Davis & Co. have for several years manufactured a standard pituitary extract under the name of "Pituitrin." The product is prepared from the posterior lobe of the pituitary gland and has come into extensive use in the treatment of delayed parturition or uterine inertia. Being specifically intended for use in obstetrical work, this preparation will hereafter be designated, in label and literature, as Pituitrin "O" (Pituitrin obstetrical).

Announcement is now made of a second preparation of the pituitary gland, to be known as Pituitrin "S" (Pituitrin surgical). This product is approximately twice the strength of the former, and is indicated specifically in the treatment of post-operative intestinal paresis, vesical atony, hemorrhage and shock. Because of its exceptional potency, it should not be used in obstetrical practice. In order that it may be readily distinguished from Pituitrin "O" (obstetrical), the carton labels are printed with red letters on white paper.

Both Pituitrin "O" and Pituitrin "S" are physiologically tested for activity.

Pituitrin "O" is supplied in ampoules of 1 mil. (1 c.e.) and  $\frac{1}{2}$ -mil. ( $\frac{1}{2}$ -c.e.), respectively, and in bottles of  $\frac{1}{2}$ -ounce. Pituitrin "S" is supplied in ampoules of 1 mil. (1 c.e.) only.

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**PHYLACOGENS IN SMALL BULBS.**—Formerly the six preparations constituting the Phylacogen line were supplied in 10-mil. (10 c.e.) bulbs only. A considerable demand has developed for a smaller package. To meet it the manufacturers (Parke, Davis & Co.) announce the addition of a 1-mil. (1 c.e.) bulb. Each bulb is enclosed in a pasteboard carton and is accompanied by a descriptive circular. These small bulbs are marketed in packages of five, which enables the druggist to supply the physician with one to five bulbs, as may be wanted. The 10-mil. bulbs, in individual cartons, will be marketed as heretofore. It is confidently believed that the two packages now furnished will meet every demand of the medical profession.

# Dominion Medical Monthly

And Ontario Medical Journal

Vol. XLVIII.

TORONTO, FEBRUARY, 1917

No. 2

## Original Articles

### REGARDING OPTOMETRY\*

R. A. REEVE, M.D., TORONTO.

Although the opticians of Ontario already have a charter of incorporation giving them wide powers and control of the means to develop greater skill and usefulness in their calling, and can exclude the unfit from their ranks, they are seeking legislation to widely extend their scope. They aim to secure incorporation as optometrists, and virtually as a profession with powers as to education, examination, licensing and discipline akin to those of the College of Physicians and Surgeons.

Their plea is that "the honest and legitimate opticians of Ontario want to do business upon a fair and square basis"; but this end can be secured by a less heroic measure, and one less calculated to interfere with the cordial relation generally obtaining between opticians and our profession. As much stress is laid upon the fact that opticians were first in the field and had honorable guilds centuries ago, it may be of interest to study what they have distinctively accomplished in theoretical and applied optics.

Convex and concave lenses were made and introduced about six centuries ago, but are not credited to any Guild or members thereof. Periscopic lenses were suggested by Wollaston, a physicist, who died in 1828. Astigmatism was discovered by Thomas Young (in 1801), a physician and celebrated physicist; and was first corrected by George Airy, a physicist, in his own person by a cylindrical lens.

It was a French surgeon, Sanson, who first found the key to the problem of the mechanism of the "accommodation," "by observing very faint reflections of light through the pupil from the two surfaces of the crystalline lens." Max Langenbeck, a physician of Hanover, made the next step by observing that the reflections from the lens alter during "accommodation," or, as Baas puts it, "in 1849 (M. L.) established the fact

\*Read in part at Section Meeting of the Academy of Medicine, Toronto.

that the crystalline lens changes its form in the process of accommodation." Later, Helmholtz, an army physician, who became a very eminent physiologist and physicist, constructed on the principle of the heliometer, the ophthalmometer, which enables us to measure in the living eye the curvature of the cornea, and of the two surfaces of the lens, the distance of these from each other (and the changes therein) and "to arrive at an exact knowledge of all the changes which the lens undergoes during the process of accommodation, with greater precision than even it could be done after death." It was the Dutch physician, Donders (1819-88), ophthalmic surgeon and physiologist, of Utrecht, who elucidated and established on a firm scientific basis the fundamental facts of refraction, and the correction of its "errors" or defects—hypermetropia, myopia, and astigmia—by properly adjusted lenses. Moreover, Donders proved that the same defects are the most frequent cause of squinting, and that most of the obstinate and obscure affections of the sight formerly reputed to be "nervous," simply depended on certain optical defects, and could be easily removed by using suitable glasses.

Dr. Herman Knapp, Professor of Ophthalmology at Heidelberg, and later in Columbia University, New York, also did some early exact and conclusive research work on astigmia. It was Javal, a physician and an ophthalmologist, of Paris, who adapted the ophthalmometer of Helmholtz to clinical purposes and introduced this very valuable instrument into practice.

The stereoscope, a serviceable optical instrument, was invented by Wheatstone and Brewster, mathematicians and natural philosophers. It is to Ben Franklin, physicist, we owe the *bi-focal* lens, which plays such an important rôle to-day, though not called now by his name as it once was.

Wm. Bowman, of London, physiologist and ophthalmic surgeon, published in 1859 his method of detecting astigmatism of the cornea, and commencing keratoconus by means of the ophthalmoscopic mirror.

F. Cuignet, an oculist of Lille, introduced in 1873 keratoscopy, now known as the shadow test, skiascopy, retinoscopy, etc., a very important objective method of studying refraction. Its correct rationale was given in 1878 by Landolt, oculist, of Paris; and Parent, also a French oculist, added very much to its practical value by using correcting lenses (in series), placed in front of the patient's eye, so as to determine the *degree* of ametropia or error of refraction.

It was Weir Mitchell, a physician and neurologist, of Philadelphia, who, many years ago, showed the connection between eye-strain and headache, and in this regard was ably assisted by other practitioners of medicine, mainly ophthalmic surgeons. This

feature—the injurious reflex effects of uncorrected optical defects—has been carefully studied by oculists and physicians conjointly; and the proper correction of optical defects has been for many years an important part of the oculist's work.

It will thus be seen that practically all the discoveries, inventions and methods which are utilized or available to-day in the study and correction of optical defects have been given us by medical men or physicists, or both, and not by opticians.

Fifty years ago, let me say, an important paper on "The Errors of Refraction and their Correction by the Scientific Use of Lenses" (spectacles), was published by an oculist of Toronto, A. M. Rosebrugh, M.D., recently deceased, and was given to the profession of the province. And a few years later a paper on the same subject was presented by another oculist of this city, who forty years ago, as a member of the staff of the largest hospital in this city, began a course of practical instruction for medical students, on the eye, its defects and diseases, such as was feasible in those days of the shorter curriculum. This course, it need hardly be said, has been greatly amplified of recent years in the number engaged in instruction and in the facilities afforded. For over thirty years a course on diseases of the eye, including refraction, has been part of the curriculum of Canadian medical schools, and at least a generation of graduates has had an opportunity of acquiring some insight into these subjects, as a foundation to be built upon in practice. And since in recent years attendance upon lectures and clinics, as well as examinations in this department, have been compulsory for candidates for the degree in medicine, a more general interest—which always was gratifying—and greater proficiency have been evinced.

It is claimed that optometry is outside of the practice of medicine, whereas it is an integral part of ophthalmology, and belongs distinctly to physiotherapy. It is a new word for an old handicraft, that of the optician which has been in vogue for hundreds of years. In fact, optician, or refracting optician, is the better term.

The character of the eye as an "optie" has all along enabled those who were not medicoes to play a certain rôle, and for generations spectacles have been utilized, mainly for the relief of "short" sight and "old" sight. Thus a class of men gradually developed—opticians, makers of and dealers in optical instruments generally, and versed in the mechanical work of fitting and adjusting lenses duly mounted as spectacles or eye-glasses. Their legitimate work has been mechanical, as they have just told the Royal Commis-

sioner, and their calling has been fairly similar, *e.g.*, to that of the skilled maker and vendor of artificial limbs. We cheerfully acknowledge that opticians have made distinct advances, and also that the mechanical part of their work is much more scientific and satisfactory than it was years ago. But this, in truth, is only in small part to the credit of the opticians *per se*; it is due rather to the efforts of a few men well-versed in mathematics and applied optics—among whom C. F. Prentice, M.E., is prominent; also in a measure to the extra mechanical skill and ingenuity of the artisans who make lenses.

This assumption of a new name and status is surely offset by the appearance before the Commissioner with the advocates of the change, of the secretary of the optician's section, of the Ontario Retail Merchants' Association. His presence is significant of the relationship of those whose interests are common on the business side. This attempt of some of the more ambitious opticians to secure incorporation virtually as a profession with rather arbitrary powers does not receive the approval of the medical profession, and there are valid reasons for this opposition. Admitting that, as a profession, we naturally regard favorably fair attempts anywhere to improve efficiency, we are equally bound to object to any efforts seemingly disingenuous, which run counter to the best interest of the public, not to speak of the profession.

Opticians have pursued the even tenor of their way undisturbed and having had somewhat the same relation towards the medical profession that druggists have borne. Now, after long years of probation, ophthalmology, to which optometry in its broadest sense properly belongs, has justified herself. The family practitioner, and one who is more or less an ophthalmic surgeon, have also found that they can be the more useful to the public by being mutually helpful. Especially when the younger generation of licentiates has had a fair grounding in these matters, it seems doubly unfortunate at this juncture to permit and sanction the entering of the wedge which would tend to divide again, and more and more, interests that are essentially one. But opticians should not be allowed to resort to quasi-degrees which mislead and impose upon the public, as these do not necessarily indicate any special skill and confer no *professional* privileges, such as medical practitioners alone enjoy.

Where, in the United States, optometrists have secured the desired legislation, it was against the strong protest of the best men in our profession, who foresaw what has occurred, that the field of medicine, especially on the ophthalmic side, would be invaded,

and not to the advantage of the public. It is the more incumbent upon the medical profession to take this critical attitude because the general practitioner is now seized of the important part played by the eye in its double character in the human economy, and of the far-reaching effects not infrequently traceable to its defects and disorders; and of the early symptoms of systemic disease which it reveals to the trained professional eye. Take, for example, headache—there are many other causes than eye-strain, some of serious import prognostically, which are naturally ignored by the optician because necessarily beyond his ken. Again, there are many cases in which the eyes seem healthy and where the sight can be improved by proper glasses, in which a more or less serious condition exists which should be under the care of a physician. Opticians there should be and must be. They have a legitimate sphere in a mechanical pursuit and should have adequate training therefor, such as would be afforded by the Collegiate Institutes of the Province and the magnificent new Central Technical School of Toronto, together with the valuable personal instruction offered by the many qualified opticians in Ontario. Their field is, however, circumscribed. They cannot employ medicine which, in many cases of eyestrain, especially in adolescents, it is desirable, if not necessary, to use in order to properly gauge the full optical defect and reveal the *unknown quantity* which may give the needed clue. In not a few instances, also, is it needed in such cases for its sedative effect. Moreover, the treatment of muscle imbalance should be regarded as without the province of opticians.

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*The Clinics of John B. Murphy, M.D.* August, 1916. Philadelphia and London: W. B. Saunders Company. Canadian Agents, J. F. Hartz Co., Toronto.

As usual, this volume embraces a good variety of subjects, dealt with from a clinical standpoint, and is well and fully illustrated.

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*Back Injuries, and their significance under the Workmen's Compensation and other Acts.* By ARCHIBALD MCKENDRICK, F.R.C.S., etc., Surgeon in charge of Surgical X-Ray Department, Royal Infirmary, Edinburgh. Edinburgh: E. and S. Livingstone.

Back injuries have always had a bad reputation, and, consequently, been the cause of numerous suits in courts of law. As minor injuries are the ones chiefly concerned, much attention has been paid to them in this little book. The author writes from a good position and experience.

## REPORT OF THE SPECIAL COMMITTEE ON MEDICAL LEGISLATION OF THE ONTARIO MEDICAL ASSOCIATION

This Committee was appointed by the President of the Ontario Medical Association when it became known that the Government had empowered the Hon. Justice Hodgins as Commissioner.

1. To inquire into and report upon:
  - (a) All or any matters relating to education for the practice of medicine in or affecting the Province of Ontario.
  - (b) The Constitution, powers, duties and regulations of any body corporate or unincorporated and of any faculty or department thereof having any relation to medicine, the exercise of the same and the revenue and expenditures thereof.
  - (c) The situation, legal or otherwise, of such bodies in regard to each other or to the province.
  - (d) The establishment, creation, control and regulation of any new body intended to have relation to medicine.
  - (e) The existing or possible methods of examining, licensing, or otherwise authorizing the carrying on by individuals of the practice of any methods having any relation to medicine and the standards prescribed and followed or proper to be established and followed.
  - (f) The present positions, status and practice of osteopaths, dentists, nurses, opticians, optometrists, chiropractors, Christian scientists or others practising or professing medicine.
  - (g) The existing laws of Ontario in relation to any of the foregoing and their practical operation.
  - (h) Any matter arising out of the foregoing which it is necessary to investigate with a view of the above inquiries.

2. To make such recommendations in regard to the above as the Commissioner may think desirable.

The Committee composed of: Chairman, R. A. Reeve; A. H. Wright, Angus McKinnon, F. N. G. Starr, A. J. Johnson, W. L. T. Addison (Secretary), J. Ferguson, S. M. Hay, I. Olmstead, R. Ryan, W. H. B. Aikens, H. S. Griffin, J. A. Temple, Hon. Dr. Reaume, W. T. Parke, Sir James Grant, D. J. Gibb-Wishart, W. A. Ross, H. T. Machell, H. A. Bruce, Forbes Godfrey, organized on Oct. 25th, 1915, with R. A. Reeve as Chairman, F. A. Clarkson, Secretary of the Ontario Medical Association, acting as secretary until the appointment of W. L. T. Addison.

It was realized that this was the most important juncture in the history of the profession since the passing of the Ontario Medical Act fifty years ago. It was arranged to appear before the Commissioner and present the views of the profession upon the matters with which he had to deal.

The Committee met the Commissioner on Oct. 22nd, 1915, and, after a short introductory statement by the Chairman, the case for the profession was fully and ably presented at length by our President, Dr. H. B. Anderson. His address has been published in the medical journals.

Dr. Angus McKinnon and Dr. H. Howitt, of Guelph; Dr. John Ferguson, of Toronto; Dr. Stewart Cameron, of Peterboro'; Dr. H. J. Hamilton, of Toronto; Dr. Chas. Sheard, ex-Medical Health Officer, also addressed the Commissioner strongly, emphasizing and supporting the arguments already presented.

The following resolutions, adopted by the Committee at its first meeting, were also read:

1. That it is highly desirable there should be a definition of the "practice of medicine," for the guidance of the Courts of this province; and it is most regrettable that the lack of such definition has proved an effective bar to the efforts of the Medical Council to enforce the law.
2. That the license of the College of Physicians and Surgeons of Ontario should continue to stand, as it has done for many years, as an evidence of a good general education, and of a thorough scientific and professional training.
3. That it is inimical to the public welfare and unfair to the medical profession for the Government, the guardian of the people's rights and interests, and administrator of education in the province, to grant incorporation to any body with power to establish quasi colleges of medicine or institutions to disseminate cults or pathies.

One cannot but pay tribute to the unfailing courtesy shown by the Commissioner and the care and thoroughness evinced by him in his efforts to acquaint himself with all the facts, data and details which could have a bearing on the complicated problem which he has set himself to solve. As the Commissioner has not yet arranged for other (promised) interviews, evidently finding it not feasible to finish his report to the Government in time for the preparation of a Bill to be submitted to the Legislature, no further action has been taken by the Committee than the adoption of certain resolutions which are appended.

We propose, when occasion offers, to take up with the Commissioner the claims and contentions of the "irregulars" which they have formally presented before him. It is, of course, the desire and intention of the Committee to utilize the great weight of influence which can be brought to bear by the various county and local societies of the province in order to emphasize the validity, force and justice of the views of the profession as to its own legitimate status and prerogatives, and to oppose all efforts and claims of "irregulars" which are not founded on the welfare and best interests of the public, whose weal is the chief aim of our life work.

Various resolutions adopted by county medical societies have already been received and will be presented at the next session of the Commission.

**RESOLUTION ADOPTED BY THE SPECIAL COMMITTEE ON MEDICAL LEGISLATION OF THE ONTARIO MEDICAL ASSOCIATION.**

That osteopathy, chiropractic and mano-therapy have signally failed to substantiate their claims to recognition and legalization, as distinctive systems of medicine, and therefore that the Government and Legislature would not be warranted in granting their followers special powers and prerogatives based on such assumption or in accordning them the status of legally qualified practitioners of medicine. The medical profession of Ontario refuses to recognize the validity of the so-called "vested rights" urged by irregular practitioners by virtue of the lapse of time of their undisturbed operations in this province, and disclaims any responsibility for an exemption incidental to faulty judicial decisions.

*Re PROVINCIAL TARIFF OF FEES.*

Resolved,—That in view of the varying conditions under which services may be rendered by the practitioner, and the varying amount of skill required in serving the needs of patients requiring medical services, and the difficulty in fixing the monetary value of such services, it is not practicable to adopt a uniform scale of fees for medical, surgical and obstetrical services throughout the province, which will be fair to the patient and to the physician.

**OPTOMETRY.**

The optometrists are seeking legislation giving them incorporation virtually as a profession, a distinctive name, with a definite status, a college and board; power to deal with curriculum; examinations; certificates; to grant exemption certificates to those

already in business, and inflict penalties, etc.—a fairly close corporation.

It is claimed that optometry is not the practice of medicine, whereas it is an integral part of ophthalmology and belongs distinctly to physiotherapy. This attempt on the part of the more ambitious opticians is the less justifiable because they have already a charter of incorporation with wide powers; and because for years practical training in ophthalmic work, including refraction, has been compulsory in the curriculum of the medical colleges.

Resolution of the Section of Ophthalmology and Oto-Laryngology of the Academy of Medicine, Toronto, and adopted by the Special Committee on Medical Legislation of the Ontario Medical Association, and also by the Academy of Medicine, Toronto.

1. Whereas in a large percentage of the cases of eyestrain, especially in adolescents, the use of medicine is required in order properly to gauge and correct any optical defects present, and none but practitioners of medicine have the right to use drugs to this end, and so-called optometrists can have no privileges in this regard not now held by opticians;
2. Whereas, opticians, who have a legitimate sphere in a mechanical pursuit, are necessarily ignorant of the far-reaching effects of eyestrain and of the *diseases* of the eye and of the changes which the organ may reveal indicating affections of the nervous, vascular and other systems and parts of the body;
3. Whereas, moreover, in the United States, where similar legislation to that aimed at here has been secured, it has proved injurious instead of beneficial to the public, amongst other reasons by increasing the number of those seeking aid from the optician who really need the services of the physician and the oculist;
4. And whereas under their present charter of incorporation opticians can adopt and utilize a variety of means to develop greater skill and usefulness in their calling and can exclude the unfit from their ranks without further powers;
5. And whereas opticians have been, and are, tradesmen, and buy and sell and advertise like other merchants; and are not entitled to be recognized as a *profession* any more than the makers and vendors of artificial limbs, who follow a similar calling;

Therefore, resolved,—That the members of the Section of Ophthalmology and Oto-Laryngology of the Academy of Medicine are strongly opposed to the proposed legislation sought by certain opticians as not being in the public interest, especially where power is granted to confer a license or certificate which may give even inferentially the right to use such titles as "Doctor of Optics," "Doctor of Optometry," "D.O." "Ophthalmic Doctor," "Eye Specialist," "Eyesight Specialist," which quasi-degrees mislead and impose upon the public, as they do not necessarily indicate any special skill and confer no professional privileges such as medical practitioners alone enjoy.

#### DEFINITION OF THE "PRACTICE OF MEDICINE."

The term "medicine" shall include any science, plan, method or system with or without the use of drugs or appliances, and whether now deemed to be included therein, or not, for diagnosing, prescribing for, preventing, alleviating, treating or curing human disorders, illness, diseases, ailments, pain, wounds, suffering, injury, defect or deformity affecting the human body or any part thereof or its physical or mental condition, or believed or imagined so to do, including midwifery and the administration of anesthetics; and the manipulation or any other kind of treatment whatsoever suggested, prescribed or advised, for body or mind, administered to, operated upon, or followed by, the patient himself or herself, or in behalf of another person, intended or professing immediately or ultimately to benefit the patient.

Any person who shall attach to his or her name or shall use the title M.D., M.B., D.O., D.O.S., Surgeon, Doctor, Physician, Healer, Professor, Ophthalmologist, Oculist or Aurist, Eye Specialist, Eyesight Specialist, Doctor of Ophthalmology, Doctor of Optometry, Doctor of Optics, or of Optical Science, Ophthalmic Doctor, Specialist, or any other letters, sign, or appellation in a medical sense, shall be considered as "practising medicine."

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*International Clinics.* Vol. III, Twenty-sixth Series. 1916.

Philadelphia and London: J. B. Lippincott. Canadian Agent,  
Mr. Charles Roberts, Unity Building, Montreal, Canada.

Three articles on Treatment, seven on Diagnosis, one on Pediatrics, two on Dermatology, one on Psychiatry, five on Surgery, and one Historical, fill this volume with much of interest and value to the general practitioner. As usual, the volume is well and copiously illustrated, one being a colored plate.

## THE RE-AWAKENING OF SILENT BLACK

By A. C. E.

Dr. Douglas Black stood at his dispensing counter taking a long draught from a black bottle. He always kept the purest and best of his medicines—*aqua pura*—in such a self-same, cheer-promising receptacle. It was the connecting link with his former practical-joke-loving days, when, as clerk in his father's general store in a New Ontario, aerospired, mining town, he would pass across the deceptive decanter to the unliquored tenderfoot, and then complacently study the physiognomic effect on the countenance of the disappointed and unhardened newcomer. These experiences, in some measure, directed his steps into medicine. He became interested in the why and the wherefore of the play of the features.

Just as he replaced the bottle on the counter, beside a small lamp—for the hour was eight o'clock of a mid-September evening—and turned to the door behind him leading into the office, which was also the waiting-room, the street door flew open and a voice cut through it like a rip-saw.

The wall between the two rooms intervened. For a second he stood muelaged to the surrounding atmosphere. It was not the command: "Get your skates on, Doc—and come to Skinner's! Hustle!" Neither was it Red Skinner's name, although that instantly awakened all his old-time aversion to Red Skinner, New Ontario settler. No. It was the sharp, rasping tone which told him Red Skinner himself was about in his grasp. That was it which set his blood afire like Jamaica ginger. But he must hold his revengeful, if not murderous, temper in hand.

A vision of a tall, powerful man with thin sandy hair; little, close-cropped reddish whiskers down to the angles of his jaw; a long thin nose with a nodule on the end of it; small piggy eyes, and a great lump in his neck like a toadstool, came back to him with added disgust and hatred.

Dr. Black rushed into the office, his hands clenched, his burly frame swollen with wrath, looking as though he would tear someone or something asunder. He fairly jumped through the left-open office door on to the wide verandah, which extended the whole width of the office building abutting the village sidewalk. In the

shadows of the night—for Carluke, like nearly every village street in Western Ontario, is maple avenued—all he caught was the rattle of wheels furiously running north down the macadamized highway. Did Skinner know who the physician was he had called.

Skinner's? Where was Skinner's? Dr. Douglas Black had only been in the locality a week, and had never yet heard such a name mentioned there. Duty, however, called. He would go. Yes. He would go, but it was Skinner he would go for—scarcely any thought of the patient in Skinner's house being in his mind, although—and he could not be mistaken—Skinner's home held two souls once, and yet, very dear to him.

His musing over, he returned to the office—the building was an old general store before his deceased predecessor, Dr. Brown, had it remodelled into a doctor's office—and as he slowly walked back he saw he could not have been seen from without as the panes in the large window on the left—the structure was on the west side of the road—were frosted, while those on the right—the office—were clear, except the lower four.

Dr. Black took from a cleek a heavy fawn raincoat and drew it on over his long black frock coat. From the office table he lifted a broad, black Stetson, and clapped it down to his tight curls, his wide, stern, smooth-shaven, dark face extending at the angles of the jaw. Then he strode back into the consulting-room and out through a rear door and across a leaf-scattered lawn to Mrs. Brown's cottage where he boarded.

"Where's Skinner's?" he demanded, rather than requested of the trim, little, matronly widow sitting in the front cozy living-room.

Mrs. Brown looked up from her newspaper at the full dark face, sensing a change in this strangely-quiet man, who should have been the embodiment of life and jollity. Her reply was to the point:

"Turn to the right at the lower end of the village; go east on that road until you come to the first cross-road, which is the middle town line; go north two miles to the sixth concession line; then turn west. The first and only house on the left side, right up to the bush, is Skinner's. There is a road through the woods, leading out to the village road, but as you do not know it very well, you had better take the roundabout way."

He seemed muzzy. His brow was rimpled, but recovering himself he hurried out to the stable south of the house to hitch up. How he could have speeded with an automobile!

Thoughts of Skinner cauterized his brain. They were as acid eroding the good as well as the bad. As he harnessed and hitched up his horse he recalled his life in New Ontario five years before, when he had left his home—his father having been dead two years —to go down to Toronto to study medicine. How he had resented the attentions of Red Skinner to his widowed mother! He had divined this tall, raw-boned mining shark and settler, erstwhile farmer, held some strange power over his mother, and young as he was at that time he had discerned his mother's mentality was commencing to decline. Indeed, it was this, principally, which had urged him to take up the study of medicine, although he was also curious to know just what that tumor was in Red Skinner's neck.

Then would he ever forget that first week in college! That telegram which came to him from an old friend of his father, advising that Skinner had eloped with his mother, carrying along his little sister, Daisy, a child of twelve years! His letter to his father's friend for fuller particulars only elicited that Red Skinner had purchased tickets at Sudbury for Winnipeg. They had vanished into the last great west.

Always more or less reserved in speech, though ever ready for a rough-and-tumble scrap, the stunning blow had turned him into a silent, gloomy-visaged student. The shame ever hung over him; so he never took anyone into his confidence.

It was not long at college before he was nicknamed "Silent" Black. To himself he vowed he would get Red Skinner some day. When he was graduated he would go north to some of the mining or lumber camps, as Skinner would very likely gravitate thither. For the present he would work himself through college by going out on surveys in his holidays.

When Dr. Black drove on to the main village street from the side street where the stable stood, his keen eyes quickly glimpsed, in the moonlight, a quiet little figure standing at the house gate as though attired for a journey. He directed the horse toward Mrs. Brown, who seemed waiting for him.

"I thought you might need your buggy-ease," explained Mrs. Brown; "you left it in the house after tea," and she passed it up to him. He took it mechanically and placed it at his feet.

It was an awkward moment. He suspected the widow was dressed to go with him, as during the week he had been in the practice he had learned Mrs. Brown, having no family, often accompanied her husband on his calls and had even nursed some of

his more seriously-ill patients, having been a professional nurse before her marriage. But her husband was too recently dead, and a widow of fifty-five was not likely to have any matrimonial notions about a young man of twenty-three.

She, however, having quite early taken the measure of his ability and ways, lost no time but followed up her explanation about the buggy-case with a pleading shade in her voice:

"May I go with you, Dr. Black? I have something to tell you about these people which is important and might detain you too long."

For answer he turned the horse's head toward the road, moved over in the seat, and allowed her to climb in without any offer of assistance.

When he had turned on to the concession line and had left the straggling village behind, Mrs. Brown began:

"These people have a very bad name. They have been living here a little over two years. The villagers say they are not married, and"—she hesitated—"the woman is out of her mind." As she spoke she felt a tightening of the reins urging the good roadster onward. "Then a gang from the south here has threatened to tar and feather him."

"Capital!" he vouchsafed.

Mrs. Brown was a little startled. Why should this strange young man, a stranger, too, who seemed so strong and manly but so very non-communicative, acquiesce in such a heinous operation on a human being? Even the manner of his coming to this village practice was a trifle odd but yet masterful. She had advertised in a Toronto daily for a young man to continue the practice on a percentage basis after the death of her husband; and whilst she was reading some letters in response thereto a telegram came from a mining camp in New Ontario advising that Dr. Douglas Black was coming at once and would accept any terms. But as she was anxious that he should know something further she hastened to enlighten him and continued, well knowing she would have an uninterrupted recital.

"On the sixth line, west of the bush and swampy land where Mr. Skinner lives, there are at least a dozen young men, sons of the farmers scattered along the concession, who have gained no inconsiderable notoriety all over this community. If they go coon-hunting in the corn patches of the farmers on the other concession lines they tear up the corn, trample it under foot, squash the pumpkins and pommel the squashes until they are all bruised and

destroyed. In winter, or rather spring, in sugar-making time, they pounce down upon the sugar bush when the farmer has returned to his home for the night and not only use up a good bit of syrup in sugaring-off, but quite frequently burn the pan and make a mess around generally. Skinner, although older, consorts with these young hoodlums. Old Sullivan, who keeps the hotel in the village, has dubbed them the Barnyard Savages.

"South of the village two miles, on the tenth concession line, the country is sandy and many of the families are sandy, too, there is another bad lot of young men. It is a community given over to the growing largely of various roots. Old Sullivan's apt cognomen for them is the Sand Pickers. The Sand Pickers started the story about Skinner not being married to the woman he lives with, because they look upon him as the ringleader of their enemies. The village, between the two factions is sorely beset, particularly in summer time, and on Saturday nights, when fights and drunken brawls are all too common. The Sand Pickers have sworn to tar and feather Red Skinner the next time they catch him out alone at night, and they have been on the watch for him all summer. Dr. Brown told me she—I suppose his wife—had been very bad this summer. I pity that poor girl! They say he keeps her in rags and scarcely ever allows her out of the house. A keeper, no doubt, for her mother! But here is the turn onto the middle town line."

Silent Black now understood Red Skinner's precipitate call and flight. He emerged slightly from his reserve and queried:

"And the child—girl?" correcting himself.

Mrs. Brown looked straight ahead into the moonlit road. She had said "poor girl," but the young doctor enunciating "child," and changing to "girl," unsettled, abstracted her. Like many women of her class she was quick in the uptake. She felt, however, this silent man had a past. Could he have been thinking of that past? For the moment the mistake, if it were a mistake, or just an ordinary slip of the tongue, clutched her reflecting centre; so she did not answer immediately. But if Mrs. Brown were waiting for another question she waited upon a man who had years ago ceased to ask questions and even to barely answer them.

And, indeed, that was what the villagers had told her of the young doctor. They could not make head or tail of him. He asked so few questions of those who had been sick since his arrival and who had been obliged to call him in or consult him at the office. Nor would he explain anything of the cause or the condi-

tions present which, in these newspaper enlightened days, seemed so tantalizing to those seeking crumbs of science. He just seemed to divine their illnesses; let them do all the talking themselves. For himself, he practised a discreet silence about the ailments and affairs of his patients.

So intent was Mrs. Brown penetrating into Dr. Black's unrevealed past that the rest of the journey was finished without a word passing between them, and there was no sound save the clatter of the horse's hoofs and the whirring of the wheels.

Silent Black directed his horse toward a gate along the roadside, got out and tied the animal to the fence, and returned to assist his companion to alight. Mrs. Brown had not, however, tarried upon the new doctor's gallantry for, with a reminiscent sigh, she had alighted upon the opposite side of the buggy. He threw the knee-spread over the horse, drew forth the buggy-case and started for the barn, a few yards along the road, out of the door of which there issued feeble rays of light as from a lantern, set either for doing chores or for lighting the doctor into the barn. He was recalled to himself by a summons from Mrs. Brown, who had followed around the rear of the conveyance:

"Dr. Black, here is the house!" pointing toward a small weather-beaten abode, which stood back from the gate and showed a dim light proceeding from one of two small windows.

Douglas Black halted, turned and came back and opened the gate, and advanced up the path leading to the isolated habitation, followed by Mrs. Brown.

He opened the door and walked right into a small living-room, which he saw at once served also for a kitchen and dining-room. A small lamp was burning low on a table in the centre of the room, upon which were the remains of a meagre supper, which apparently had been hurriedly partaken of or possibly interrupted.

Without awaiting the appearance of anyone, he threw off his outer coat and hat, placed the buggy-case on a chair, and passed into one of two bedrooms whose door lay wide open, whilst Mrs. Brown seated herself in an unarmed rocker.

Across the bed lay a figure sobbing dully; and placing the palm of his left hand upon the brow of the other occupant, his iron nerve almost deserted him, for it was firm and cold in death.

He took the figure lying across the helpless clay by the shoulders and gently and kindly raised it from the bed. Then he led the young girl, supported by his strong arms, out to the living-room

where Mrs. Brown, seeing that something awful had happened, silently received her into her motherly embrace.

Taking up the lamp he re-entered the bedroom, when a folded paper clutched in the right hand of his dead mother, and which hung down over the edge of the bed, attracted his attention. He withdrew it and placed it in the inner pocket of his coat.

As he completed this act a blood peetic yell, or screech, mingled with angry voices, smote upon his ears. The sounds came from the direction of the barn only a few yards distant.

In two strides he reached the table, set the lamp thereon and then tore out of the house like a mastiff after a cat.

In the clear moonlight he spied a group of struggling forms on the road directly in front of the barn. He took the low fence in front of his horse at a bound. As he ran he crouched low, bunched his shoulders, and charged full tilt upon the contending clump. Down went the whole bunch of contorting figures as though struck by a giant caber. It was as though a debacle had struck the road.

As Douglas Blaek went over with the rest, his hands swept a bare back smeared with a thick coating of tar. His flaring nostrils sucked in the penetrating tarry odor, while his ears caught the sound of a lusty shout, not over a hundred yards away, coming up the road from the direction of the wagon track through the woods to the west.

But the others heard that cry, too. The Sand Pickers picked themselves out of the scramble like a flash.

The force of Dr. Black's charge had carried him and Red Skinner clear of the bunch. He jumped to his feet, his back to the rescuers. Red Skinner was equally quick and faced him. He recognized his antagonist and his face took on a sardonic risus. The farmer held a heavy neck-yoke in his hands, but despite of it he had been held and overpowered by the five hardy Sand Pickers who were now racing past the doctor's rig to their own light wagon tied to the fence farther back the road.

"You devil! I have you at last!" crunched Silent Black, and he aimed a terrific blow at the swelling in Red Skinner's neck, unable to curb his temper at the sight of the detestable despoiler of his home.

But the tall powerful farmer was as active as a lynx, and as keen-eyed. He jumped to the right, his eyes blazing in awful wrath at the son of the woman who, unknown to him, now lay dead in his miserable habitation.

Douglas Black, carried past his enemy, turned in time, for Red Skinner had raised the heavy neck-yoke aloft for a smashing blow on Silent Black's unprotected pate. Many arms reached for the weapon. The Barnyard Savages were up with them, a dozen strong. They were coming for Red Skinner for a grape-nimming expedition, when they heard the yell which brought Dr. Black upon the scene. The farmer made a mighty swipe to release the rough weapon. The ring rattled under his hands. A stream of blood shot from the aneurysm. He dropped upon the ground. He was dead.

Dr. Black led the way to the house. The companions of Red Skinner followed with the body.

He looked at the young girl of seventeen clad in a lochram peignoir, rimed and rimpled. She was resting in the arms of Mrs. Brown. She was dark and comely as Barrie's Babbie, but shrunk from the gaze of the robust man who was her brother.

Suddenly he reached into the inner pocket of his long coat and drew forth the paper he had removed from the hand of his dead mother.

"By God, boys!" he cried; "It's not so bad! This man was married to my mother all right. This is my sister," and he passed the marriage certificate, dated in Chicago about five years back, to Mrs. Brown. Then he fell into a chair and wept tears of pain commingled with tears of joy that the final punishment of Red Skinner had been so providentially taken out of his hands.

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### THE SCOPE OF INDUSTRIAL HYGIENE\*

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J. W. KERR, M.D., Washington, D.C.; SIDNEY MORRELL McCURDY, M.D., Youngstown, Ohio, and OTTO P. GEIER, M.D., Cincinnati.

---

Your committee was appointed at the last annual meeting to outline the immediate problems of industrial hygiene, and the relations of the medical profession to their solution. The importance of these problems is being increasingly recognized, not only because the lives and health of approximately thirty million workers are

\*Read before the Section on Preventive Medicine and Public Health at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916. From The Journal of the American Medical Association.

affected, but because the industrial development of the country is involved.

With the great development of modern industrialism, in which the mutual relations between master and man were replaced by the conflict between capital and labor, many senseless abuses, economic and social, arose. Among them may be mentioned insanitary environment in tenement and workshop, low wages and unreasonable hours, speeding up, seasonal occupation, unemployment, and the existence of a large labor reserve.

In addition to these abuses mention must be made of the stream of newer and unskilled labor, for which no proper and definite channels of distribution were provided.

Equally objectionable abuses by labor, on the other hand, such as strikes, accompanied by violence and intimidation, have also encouraged misunderstandings, with the result that a wasteful warfare has been permitted to continue more or less constantly, thus threatening our economic and social success, as well as the public health.

This unsatisfactory state of affairs, and especially the increasing economic pressure, has compelled the more thoughtful elements of both groups, stimulated by a growing public sentiment, to search for a remedy.

In studying the situation one fact stands out prominently, and that is that the great mass of the workmen has been denied the opportunity of enjoying, even in reasonable degree, healthful living and working conditions.

This situation has furnished a common ground on which all parties interested could meet and agree. As a result, the past decade has witnessed the development of industrial hygiene to a considerable degree, thus paving the way for further mutual adjustments and compromises.

It is obvious that no narrow conception of the field of industrial hygiene can be regarded as common ground on which capital and labor may meet or be expected to establish the modern counterpart of the former relation of master and man. It is the broader conception of the importance of the health of the worker which has introduced the physician into industrial management.

As Dean Marquis says, it is the duty of the factory doctor to promote understanding between employer and employee, to take drudgery out of labor, and to maintain interest in the individual, in other words, to put a soul into his corporation. The right man

in this capacity will stamp out much bitterness and readjust human relations.

There is also an economic reason for the existence of an employees' service department, which will not only look after the physical needs, but also consider them in respect to mental and moral needs.

From the foregoing it is evident that a large field of opportunity is open to the physician in industry, but his professional and social value will depend entirely on his personality. If he would succeed, he must be able to deal with social as well as medical problems, in other words, deal with individuals rather than cases.

The scope of activities and opportunities of those engaged in industrial hygiene had perhaps best be outlined in the order in which it has been undertaken in industry, as follows:

1. First aid to the injured, followed later by complete surgical attention with maintenance of surgical hospitals.
2. The safety first movement, with consequent studies of the causes of injuries and the measures necessary for their prevention.
3. Inquiries into the physical status of workers in relation to accidents, and physical examination of workers. It was this latter activity by itself that aroused the opposition of organized labor, because physical examination *per se* merely eliminated the physically unfit without concern for their future health or welfare.
4. Medical supervision and care of employees, which marked the real step in the humanization of industry, because it gave the workman knowledge of his own physical defects, fitted him to jobs for which he was physically suited, and prevented over-fatigue of body and mind.
5. Sanitation of places of employment, including water supply, sewage disposal, light, heat, ventilation and personal comforts such as rest rooms, recreation and luncheon service.
6. Sanitation of environment outside the workshop, including prevention of overcrowding and giving encouragement to the accumulation of property.
7. Consideration of the health and habits of the individual which makes for efficiency. In the event of a close enough personal relation having been established between the worker and the personnel of the employees' service department, advice in respect to personal habits and worries, domestic and financial difficulties will undoubtedly at times be sought with resulting benefit to all.

Helpful interest, looking to a prevention of alcoholism in the worker is another case in point. In fact, it is to intelligent indus-

try, which refuses employment to the alcoholic and thereby places this problem on an economic basis, that we must look for a final solution of drunkenness.

8. Stimulation of interest in the formation of sickness and insurance societies, that is, mutual aids, and the establishment of old age pensions and death funds.

In addition to the above, those engaged in industrial hygiene within a circumscribed area have duties to perform outside that area. Co-operation with others in like fields is necessary and research must be undertaken in order to provide solutions of problems of national interest. Two of these are the prevention of alcoholism and the development of a system of mutual helpfulness by means of insurance.

Fortunately opportunity is presented for such co-operation through agencies, such as this section of the American Medical Association, and through the Association of Industrial Physicians recently formed. In addition the house of delegates of the American Medical Association is actively interested in a broad study of health insurance, in order that the whole medical profession may be prepared in due time to take its part in this matter.

At present for the most part the expenses of industrial hygiene are borne by the management. The workers who have a large degree of responsibility for health conditions are the recipients of the benefits, but do not share proportionately in the expenses. The public, too, benefits without sharing in the expense. It is therefore but just that these three groups which are responsible should meet their responsibilities by collective action under a well-thought-out plan of health insurance. An adequate health insurance system, national and state, when put in operation, will not only increase efficiency and enlarge the opportunities of the medical profession for good, but will also be a powerful means of reducing sickness and promoting health.

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*Mentally Deficient Children.* By SHUTTLEWORTH and POTTS.  
London: H. K. Lewis.

At a time when the subject of mental defectives is attracting wide attention in this country, this fourth edition of an excellent book will be received with interest by the medical practitioner and those particularly concerned therewith. The book is quite fully illustrated.

## News Items

Dr. Melville H. Embree, Toronto, is home on leave from overseas service.

The Ontario Health Officers' Association will hold its annual meeting in Toronto, May 29th and 30th, 1917.

The Western Hospital, Montreal, admitted 1,567 patients during 1916, an increase of 98 over 1915. The death rate was 2.7 per cent.

Colonel James A. Roberts, C.B., Commanding Officer of the University of Toronto Base Hospital, has arrived in England from Saloniki.

Captain E. Stanley Ryerson, who was with the University of Toronto Base Hospital at Saloniki, has returned to Toronto on leave of absence.

Major John Amyot, overseas with the First Canadian Expeditionary Force, has been promoted to be Chief Sanitary Officer of the Canadian Forces.

Colonel Herbert A. Bruce is returning to Toronto on five week's leave of absence. He has been appointed to have charge of surgery in several hospitals in France under the R.A.M.C.

Laval University Unit is being established temporarily in a hospital in Paris, France. The accommodation is 1,400 beds. Laval's own hospital building is under construction, and will be ready by May.

The rumor is again revived that the Hon. Dr. Beland, sometime Postmaster-General of Canada, will shortly be released by the Germans, with whom he has been a prisoner of war since the invasion of Belgium.

The Royal Victoria Hospital, Montreal, last year, had 6,075 patients, an increase of 654 over the previous year. The deaths numbered 295, a death rate of 4.9 per cent. The total cost per patient per day was \$2.18, seven cents over the previous year.

Acetophen, the antipyretic, analgesic, antiseptic, exempt from the war tax by the Government, as identical with the German product Aspirin, is being manufactured in Canada by Charles E. Frosst & Co. This would indicate that "Made in Canada" shows progress in the chemical line. Acetophen is supplied in 5, 7½ and 10 gr. disintegrating tablets, as well as powder form.

# Dominion Medical Monthly

And Ontario Medical Journal

## EDITED BY

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Dwyer, Goldwin Howland, Geo. W.

Ross, Wm. D. Young.

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Published on the 20th of each month for the succeeding month. Address all Communications and make all Cheques, Post Office Orders and Postal Notes payable to the Publisher, GEORGE ELLIOTT, 219 Spadina Road, Toronto, Canada.

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Vol. XLVIII.

TORONTO, FEBRUARY, 1917

No. 2

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## COMMENT FROM MONTH TO MONTH

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“**The professional etiquette** that obtains in medical circles is bad enough in civil life, but the liberty of selection left to the patient is some safeguard against irregularities.”—*The Globe*.

“**The obligations of newspaper honor** require a public journal to protect even the most despicable correspondent.”—*The Evening Telegram*.

“**Thinking people** feel there is a danger to the community, even in civil life, in the way one doctor stands by another, no matter how inefficient or unworthy of confidence he be.”—A Professional (?) Nurse in *The Globe*.

The above quotations from very recent issues of two Toronto papers of repute are interesting to the medical profession. It is strange that one denies to the medical profession any such morale as professional etiquette, apparently holding it as a cloak to cover a multitude of supposititious sins; while the other, almost on the same day, acknowledges that newspaper honor will protect the most *despicable* of correspondents. The medical profession never goes so far as this, as no medical man will shield, from just and righteous deserts, a colleague guilty of “the most despicable” conduct.

Nor is the conduct of the correspondent, even though a nurse, to be commended, who should know the medical profession as it is, for asserting that medical men "stand by" a colleague who is "unworthy of confidence." The medical man who is "unworthy of confidence" is ostracized from medical societies, though he is quite often, by so being, more worthy of the confidence of newspapers. Not many nurses would have penned such a sentence.

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**Provincial Supply of Antitoxin.**—The Provincial Board of Health for Ontario will, at the end of the present month, complete a year's contract for the supply of diphtheria antitoxin, tetanus antitoxin, anti-meningitis serum, smallpox vaccine and Pasteur preventive treatment for rabies. These, as well as mixed typhoid and paratyphoid vaccine, are supplied free to the public all over the province. Diphtheria antitoxin costs the Board 15 cents per 1,000 units, in vials; tetanus antitoxin, 30 cents per 1,000 units, in vials; anti-meningitis serum, \$1.00 per 20 c.c.'s; smallpox vaccine, 4c. per capillary tube, and Pasteur treatment, \$15.00 per person treated. Mixed typhoid and paratyphoid vaccine is prepared and supplied free by the Board's laboratory in Toronto. The aggregate cost of supplying the province for the year is \$40,000, or about one-quarter of the cost under commercial prices. All these products, except typhoid vaccine, are obtained from the University of Toronto, and are prepared at the Connaught antitoxin laboratories, about twelve miles outside of the city. Needless to say, the enterprise of the Board is the subject of many appreciative remarks by the public and the medical profession.

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**The Workmen's Compensation Act of Ontario** needs amending. The working man is not getting the square deal he deserves. The producer, from this time on, requires to be dealt with generously and fairly, for, until the war is over, much depends upon the producer.

At the recent conference held in the Ontario Parliament Buildings, before the Private Bills Committee, it was apparent that the working man and the doctor were one in the stand they took that the Commission should pay the attending physician's fees and the hospital fees as well. The manufacturer, who thinks he has to pay the bills, acknowledged these should be paid, but took the ground that the industries could not stand any additional assessment. But

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if the principle is right, the community must ultimately pay, as they pay now. It is only a question of a little more out of the community's pocket—out of the pockets of the working man, the physician, the lawyer, the preacher, the manufacturer, etc.

As the law now stands, it does not permit the physician suing for his fee. The consent of the Commission must be secured. Even were the physician permitted to sue under common law, with the working man believing the law was not just to him, and believing the Commission should pay for him, what position would the physician be in who is constantly attending upon industrial accidents? He would either be in the courts all the time, or he would be obliged to write these accounts off his books, leaving the working man under the odium that he would not pay his bills for professional services. Would the physician continue to render prompt services under any of these conditions?

There seems to be only one just way, namely, to assess the industries to cover these accounts; and the manufacturer, in turn, to advance prices to the consumers.

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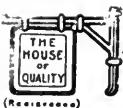
*Bandaging.* By A. D. WHITING, M.D., Instructor in Surgery, University of Pennsylvania. Illustrated. Philadelphia and London: W. B. Saunders Company. Canadian Agents, The J. F. Hartz Company, Toronto.

As instructor in bandaging at the University of Pennsylvania, the writer is in a position to present a good little book of this character. It is of especial value at the present time to students, recent graduates and practitioners who go overseas with our troops. The illustrations amplify the instructions.

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*Personal Health.* By WILLIAM BRADY, M.D., Elmira, N.Y. 12mo of 407 pages. Philadelphia and London: W. B. Saunders Company. 1916. Cloth, \$1.50 net. The Canadian Agents, The J. F. Hartz Co., Limited, 24-26 Hayter St., Toronto.

To district nurses this practical little volume should appeal, as entering the homes of the people for health instruction, they teach much which is contained herein. Indeed, the book can be read and studied with profit by all.



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## Reviews

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*The Encyclopedia of Foods and Beverages—(A Wonderful Encyclopedia of Foods).*—New York: 50 Union Square. Artemus Ward, Publisher.

A reference work which has won extraordinary wide approval during the last year or so is *The Encyclopedia of Foods and Beverages*. Recognition of its practical value has come from every part of the United States, including our island possessions, for recent requisitions cover both Porto Rico and Hawaii.

It is now to be found—a much-consulted volume—in hundreds of public and professional libraries; in hospitals and doctors' offices; on the reference shelves of colleges, etc., and it may fairly be pronounced indispensable, for it presents, in quickly available form, information which in many cases is not found in any other work, and which still more frequently would necessitate a search through a dozen or more authorities. No other book or set of books covers the field with anything like the same thoroughness.

The contents include the entire range of foods and beverages, alphabetically ordered and heavily cross-referenced. Each item is treated comprehensively, its habitat and cultivation; how to select, care for and use it. There is no "padding" or redundancy—its pages are as entertaining as instructive, but every superfluous line was deleted from the copy. Accuracy was insured by having every item written or revised by special authorities.

The variety of knowledge is very great. *Kangaroo Tails*, as a new meat supply, is immediately followed by *Kanten*, a Japanese "gelatine"; *Kosher* treats of Jewish food restrictions; and *Caviar* and *Truffles* present all the information that an epicure could desire.

For many people this work holds a fascination more impelling than that of a "best selling" novel. It takes you all over the world, and every line you read adds to your erudition. It corrects many popular errors and adds new interest—in some cases, an almost romantic charm—to the foods by which we live.

The illustrations include eighty color-plates, which are described by the press as the "most beautiful that have ever appeared in a work of encyclopedic character in this country," and hundreds of other illustrations (photographs and diagrams), depicting

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*Blood-Pressure.* From the Clinical Standpoint. By FRANCIS ASHLEY FAUGIIT, M.D., formerly Director of the Laboratory of Clinical Medicine at the Medico-Chirurgical College, Philadelphia. Second edition, thoroughly revised. 1916. Octavo of 478 pages, illustrated. Philadelphia and London: W. B. Saunders Company. The Canadian Agents, The J. F. Hartz Co., Ltd., 24-26 Hayter St., Toronto, Ont.

In this second edition of a popular and valuable book in modern medical practice, the author has introduced a large amount of clinical material, including many new charts, which add much to the practical value of the work. As blood-pressure is now universally recognized as an almost necessary method in clinical diagnosis, practitioners will find in this new edition the best that can be offered upon the subject.

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*Diseases of Occupation and Vocational Hygiene.* Edited by GEORGE M. KOBER, M.D., LL.D., and WILLIAM C. HANSON, M.D. With illustrations and reference tables. Philadelphia: P. Blakiston's Son & Co.

The literature upon the subject of industrial or occupational diseases and hygiene is commencing to keep pace with the activities in this new department of medical practice. Many excellent articles have, in the last few years appeared in several medical journals, some books have been published, and numerous governmental and municipal reports have from time to time been issued. Investigations along different lines have been carried out, and the observations recorded in special form. All this adds material of value to medical science. In Canada the subject up to the present time has been sadly neglected, except for a few sporadic and tentative investigations, and so far as we know, one solitary paper in one medical journal. This country, however, views with no inconsiderable interest the progressive manner in which the subject has been attacked in the United States.

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New York City, U.S.A., 98 Front St.

The book under consideration presents an exhaustive treatise upon the subject; and as it is compiled from articles by many well-known authorities and workers in this special field, it can be looked upon as presenting a very satisfactory exposition of the diseases of occupation and vocational hygiene. To those of our readers who are manifesting an interest therein, we heartily commend the work. To officers of health it will be of special value.

The book is divided into three parts, as follows: Part I—Specific and Systemic Diseases of Occupation, Fatigue and Neurosis, etc.; Part II—Etiology and Prophylaxis of Occupational Diseases, Vocational Hygiene; Part III—The Relation of Clinics, Statistics, Governmental Study and Legislation to Occupational Diseases.

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*The Physician's Visiting List for 1917.* Philadelphia. November, 1916. P. Blakiston's Son & Co.

*The Physician's Visiting List for 1917* includes an entirely new dose list, prepared in accordance with the new United States Pharmacopeia. This will prove an exceedingly useful feature, as there were many changes, improvements in standards, new drugs and other material inserted. This list gives the dose in both the apothecary and metric systems and the solubility and important incompatibilities when called for.

Several other new tables have been inserted, such as isolation periods in infectious diseases, table of mortality, etc.

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*The Operating Room.* By AMY ARMOUR SMITH, R.N., formerly Superintendent of New Rochelle Hospital, New York; Superintendent of Nurses at the S. R. Smith Infirmary, Staten Island, and at the Woman's Hospital of the State of New York. 12mo of 295 pages with 57 illustrations. Philadelphia and London: W. B. Saunders Company. 1916. Cloth, \$1.50 net. The Canadian Agents, The J. F. Hartz Co., Limited, 24-26 Hayter St., Toronto.

A primer for pupil nurses, written by one who has had a wide and extended experience as superintendent of nurses, may well speak with authority on this subject. We believe, too, that house surgeons and final year students will find much of value in the book.

# **Dominion Medical Monthly**

**And Ontario Medical Journal**

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Vol. XLVIII.

TORONTO, MARCH, 1917

No. 3

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## **Original Articles**

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### **HEAT AS A METHOD OF TREATMENT IN SOME FORMS OF CAVITY CARCINOMA\***

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J. F. PERCY, A.M., M.D., F.A.C.S.

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We will, first, consider the treatment of cancer of the uterus by the application of a pasteurizing degree of heat applied while the patient is under an anaesthetic, and, second, refer to the possible beneficial results to be obtained by the continuous application of an endurable or supportable degree of temperature in inoperable cavity carcinoma without a general or local anaesthetic.

From the historical viewpoint there are many indications that fire played a most important part in the surgery of primitive man. The records of the past, it is true, are rather shadowy in this, as in other important matters of human effort in the relief of diseased processes; but that fire was used to cut down, or remove, offensive external growths, and to limit the haemorrhage and do away with the offensive discharge, in addition to cutting off diseased extremities, admits of no contradiction.<sup>1</sup>

Following the irregular and empirical use of the cautery, came the epoch-making work of John Byrne, of Brooklyn, N.Y., where he advocated the excision of the cancerous cervix by the use of the galvano-cautery knife.<sup>2</sup> This cutting operation by heat, it is unnecessary to relate, required a high degree of temperature in the electric knife. It can be stated further and accurately that the Byrne operation was limited to the first stage of cervical cancer involvement, the type of case that is to-day considered suitable for the Reis-Wertheim radical hys-

\*Read before the meeting of the Ontario Medical Association, Toronto, Canada, May 30 and 31, June 1 and 2, 1916.

tectomy. Byrne did not attempt his technic in the advanced inoperable pelvic cancer patient; the one in which the examining finger, through the vagina, gets the impression that the pelvic basin is filled with cement. Byrne began his galvanocautery excision of the cervix approximately forty-four years ago. His published results have always interested surgeons, and many of them, in a desultory way, have attempted his technic; but none have had either his experience or his successes to record. But out of these unsystematic or irregular attempts to follow the work of the Brooklyn surgeon, especially in the last thirty years, occasional reports would be made of the disappearance of advanced cervical cancer where the cautery had merely been employed to melt down the prolific mass in order to stop the haemorrhage and the repulsive waste.

It is also of tremendous interest to learn that for some reason, probably unfathomable, the cancer-invaded tissues of this type would heal over, and remain so, and the patient recover. A notable outcome in a case of this character is to be found recorded in one of my first papers,<sup>3</sup> where I reported the results of my first series of cases, thirteen in number. This patient was operated September 21, 1908, and as far as freedom from pelvic or any other ascertainable form of carcinoma is concerned, is to-day in perfect health.<sup>4</sup> This woman's abdomen, however, was not opened, and there was no subsequent treatment.

It was the results in this very extensive and otherwise hopeless type of case that taught me the possibility of a cure from the application of a cauterizing temperature. It may be well to report here also that the great extent of the involvement of the apex of this woman's vagina, with the final favorable results, encouraged me to persist in trying to find a method for the mere thorough application of a cauterizing temperature in my future cases, almost regardless of the possible destructive effects on the adjacent normal tissue structures. If the posterior bladder wall, exclusive of the ureteral orifices, or a portion of the anterior wall of the rectum, are involved in the malignant invasion, it is better that these be destroyed with the hope of a future surgical repair, than to leave them uninfluenced by the heat. A colostomy can be made a good substitute for the normal anus, and the upper part of the vagina can be converted into the lower part of the bladder. The tragedy not infrequent in metastatic cancer of the bladder and rectum is an ascending pyelonephritis. This complication

exists either alone or combined in a very large percentage of cases when these patients first present themselves. It is not an uncommon finding for the cystoscope to disclose deformed or infected ureteral openings. This condition cannot be improved by the application of the heat. Indeed, if the carcinoma involves the region immediately adjacent to the ureters, and this area is destroyed by the heat, the problem of repair involves the further danger of deforming the ureteral mouths, or of kinking the ureteral tube when the edges of the fistulous opening are sutured together. It was the recognition of this very real difficulty that suggested the technic referred to above, that of converting the upper part of the vagina into the lower part of the bladder. A vesico-vaginal or a recto-vaginal fistula, whether produced by the cancer or by the heating iron, adds greatly to the ease with which the ureters, pelvis of the kidney, or the kidney proper, may be infected. In my early work, my greatest concern was a postoperative haemorrhage from the uterine arteries. With the tying of the internal iliae and both ovarians, this has been eliminated as a source of worry. But a larger experience has developed the fact that a terminal kidney infection, either a nephritis or a pyonephrosis, is a complication that has added to my mortality statistics in a way that cannot be ignored.

I am also convinced that an early prolific cause of these damaged kidneys is a pyometra which so frequently accompanies cervical cancer. The growth blocks the canal, infection of the retained secretions increases, the uterine cavity fills with septic material, and absorption occurs with its varied train of symptoms, *viz.*, cachexia, loss of weight, and general deterioration of health. The patient dies, not from her cancer, but from a general sepsis produced by the mechanical obstruction incident to her malignantly closed cervix. When the heating iron is passed to the fundus of the uterus and the cavity thoroughly sterilized, and natural drainage thus provided for, it is one of the most gratifying experiences in surgery to see these women improve in every way. As a rule, the cachexia disappears within two weeks. If the bladder and rectum have not been opened, the improvement, both local and general, in the great majority of these women, is in every way comparable to the ease of benign obstruction of the stomach after a well-made gastro-enterostomy.

Occasionally, surgeons, in discussing the relative merits of the various recognized surgical procedures for the treatment of

cancer of the uterus refer to degrees of malignancy as they are found in the cervix and body of this organ. The inference is almost always drawn that cancer of the body of the uterus and that of the vaginal portion of the cervix, which does not involve the canal, are much less malignant than that form which has its origin within the cervical canal. From the standpoint of pathology, this is true. In another paper<sup>5</sup> I have referred to the practical classification which may be made when these cases are first examined. On the cervix we may have the "vegetative" or "everting" form of growth in contra-distinction to the "infiltrating" or "inverting" form of the disease. This latter is the squamous-cell type of carcinoma of the cervix, which occasionally involves not only the vaginal portion of the cervix, but the general vaginal walls as well. When this occurs, there is not much ocular evidence of its presence, but, digitally, small pearl-like masses can be felt, which develop not only from the surface structures of the vagina, but also from its deeper tissues. It is this infiltrating form that is exceedingly vicious in its tendency to recur, when once its host is disturbed and laid bare by the knife of the surgeon. It is a curious and also an interesting fact that adeno-carcinoma of the body of the uterus seems to be a much less virulent disease than the same cell when at work in the cervical canal. It is also a much more difficult matter to arrest the progress of carcinoma when its greatest activity seems to be at the junction of the body of the uterus with the cervix, the probable explanation, from the anatomical point of view, being the abundance of lymphatics and blood vessels at the cervical neck in comparison with the meagre supply in the body of the uterus. Utero-cervical carcinoma, if it originates in the cervical canal, is difficult to arrest, and when disturbed by the knife of the surgeon also often assumes a rapidity of growth that is remarkable.

But it is not necessary to particularize or specify degrees of malignancy in various forms of cancer when subjected to the usual well-known surgical procedures where the knife is used. The thing that should be emphasized is that no matter where the cancer is located: in the uterine fundus, the cervical canal, or the everting type on the surface of the cervix, if given time enough, all these various forms of the disease will kill the patient. It is begging the question, as one writer has done recently, to state that seventy-five per cent. of the "fungating" or "everting" type of cervical cancer can be successfully re-

moved by an ordinary hysterectomy and no recurrence follow. You cannot remove any type of pelvic cancer with the cold steel knife, without there being an enormous margin of risk of a recurrence. The steel knife always acts as a mechanical stimulant when it touches a malignant cell-nest, no matter how small or remote it may be from the original focus. To attempt, therefore, a differentiation of the degrees of malignancy, as far as our clinical knowledge of cancer, to-day, is concerned, is useless. Time, alone, is the insistent factor that makes every potentially malignant cell arrive at the same deadly goal.

There is another phase of the pelvic cancer question that I do not believe is sufficiently recognized by surgeons; and that is the slowness with which metastasis appears outside the pelvis in other regions of the body, especially the abdomen. We know that rectal carcinoma in the larger number of cases causes no special discomfort as long as the intestinal tube remains unobstructed, often for years. The pelvic basin will literally hold carcinoma, many times until the whole cavity is tightly packed with the disease, and at post-mortem a thorough search will discover no malignancy other than in the pelvis. These cases, unoperated, or, if operated with the knife, die, regardless of the type of cell disclosed by the microscope. But if the mass can be heated to a degree which experience, and the laboratory, have shown inhibits the further growth of the disease, an otherwise utterly hopeless case can be brought back into the realm of operability where life can be prolonged in comfort, and frequently saved for an indefinite period.

In a discussion on cancer metastasis before the American Surgical Association, the late Dr. John B. Murphy<sup>6</sup> referred to the findings in 10,315 post-mortem cases that had died, unoperated, from cancer located in various parts of the body, and stated that in cancer of the cervix and uterus no demonstrable metastasis in glands outside of the pelvis had been found in thirty per cent. of the cases. In other words, a woman can die, unoperated, of cancer of the cervix or uterus, and a scientific post-mortem will disclose no extension of the disease beyond the original focus. Is it at all strange that Murphy should observe, as he did in that discussion: "Then we may as well ask how many cases can be saved by operation, months, even years, before the dead-house stage of the disease is reached!"

I believe that we are near the time when, as a profession, we must ask ourselves whether we have not been too pessimistic with regard to the possibility of benefiting cancer by treatment.

Our attitude is one of chronic doubt, and this is a most unfortunate basis for constructive scientific endeavor in the development of any hopeful form of treatment, whether it be cancer or some other process due to disease. Again, we too frequently give up after the first attempts to obtain benefits seem about to fail. The patient is abandoned to her fate, or else encouraged to take morphine, which means a combined cancer and morphine death. Our pessimism is well reflected by the attitude of the public, who consider the whole question as well settled, and that on the side of utter hopelessness. The treatment of cancer requires an infinite amount of patience in its management, to say nothing of judgment and experience. In addition, the patient, not to mention the surgeon, must be willing, in an advanced case, to stand a lot of grilling disappointment and grief.

So far, we have been considering the application of heat in cancer, only when the patient is under an anæsthetic. General anaesthesia, and its effects on the developing body-resistance to the progress of the cancer mass, already referred to, assumes additional importance from the recent studies of Gaylord<sup>7</sup> of Buffalo. This work seems to show that in the experimental cancer of the laboratory animal there is a distinct lowering of the natural resistance to the growth of cancer after the administration of either ether or chloroform. These studies also seem to demonstrate that the nitrous oxide, oxygen method of anaesthesia does not interfere with the animal's resistance to the inroads of cancer to the same extent that ether or chloroform do. The question of the treatment of cancer by heat, without the patient being under an anæsthetic, gains additional importance again from the studies of both Wassermann and Delbet. Wassermann determined that a mouse, the subject of experimental cancer, if placed in a continuous external temperature of 40.5°C. (105°F.) will show not only an inhibition of its carcinoma growth, but the cancer will gradually disappear. The control animal, on the other hand, will die from the progressive development of the disease. Delbet repeated these observations of Wassermann's, and confirmed them in every particular.

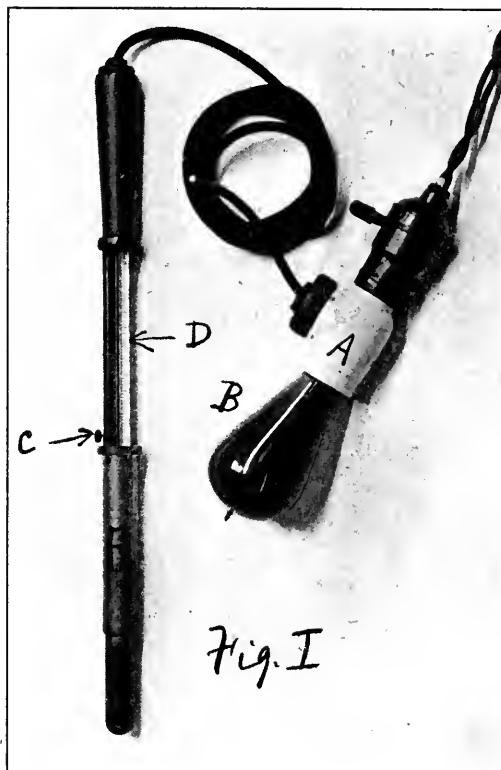
In my studies of the relative values of high or low degrees of heat in the permanent destruction of a mass of cancer, it did not take long to recognize the fact that a gross mass of cancer could be totally destroyed by the actual cautery; but the important fact remained that the attenuated malignancy outside of the immediate mass was practically not influenced beyond the point of contact with the cautery. The explanation of this is the development of the carbon core from the excessive produc-

tion of heat in the cautery iron. On the other hand, when a Pasteurizing degree of heat was applied over a period of from forty to sixty minutes, a destruction of the pathological tissue a very considerable distance beyond the direct application of the heat was obtained. The length of time required to obtain the most extensive penetration possible by the low heat in the heating iron is explained by the inhibiting effects of the circulating blood. You cannot get heat penetration in the most effective way until the flow of blood in the parts is arrested. Since tying the internal iliac arteries and both ovarians, the time necessary to get the required degree of heat penetration has been materially shortened.

My experience in the treatment of cancer comprises, first, the cutting or cauterizing temperature. The logical result of this use of the cautery in cancer of the uterus was the production of the carbon core, with a consequent inhibition of further heat penetration. The use of the cautery taught me that heat was the essential thing, and from this grew the experimental work from which I determined the necessary degree of heat by a controllable electric heating iron that would give the greater penetration. The direct effect of this degree of heat was determined by a coagulation of the tissues without the formation of the carbon core. This discovery has been of immense practical value in treating mass-cancer by the dissemination of heat. Both in my own clinic, and in the clinics of other surgeons, this later method added greatly not only to the immediate results, but in the lessening of many disagreeable sequelæ for the patient, so that the remote results, so far, are such as to lead me to believe that we are in a position to really offer to the patients something that is more than a hope.

The one remaining problem has been that of treating the infiltrating form of the disease where it involved the vagina, and possibly the bladder or rectum. In these locations, mass or bulk as it exists in the uterus, is frequently not present, and the cautery is out of the question, because of its destructive effects. Coagulation, on the other hand, cannot be obtained with a low degree of heat, because there is no mass through which it can be disseminated. The next problem, then, was to inquire whether it was possible to adapt to the human sufferer from this disease the methods which had been successfully used to destroy the malignant growths of the laboratory animal by the continuous application of a very low degree of heat. Cancer in the vagina, about the vulva, in the anus, and frequently in the rectum and bladder is, as already mentioned, of the same in-

filtrating type, *i.e.*, it is without bulk, thin, and frequently spreads over a considerable area. It was necessary to devise a special instrument that was practicable for this treatment. I first tried a small electric lamp pushed into the finger of a



rubber glove, and inserted into the vagina. I found that the electric light could not be adapted to this sort of work, because it soon burned out. In addition to this, there was no means of knowing the degree of temperature that one was getting in the cavity treated.

Without detailing further the various attempts made to find a satisfactory instrument, I will describe the one finally adopted as the most useful. It consists of a series current tap (A) which can be inserted into any electric lamp socket of 110 volts, and on either a direct or alternating current. A carbon lamp (B) of half ampere, with a deep blue glass globe, is part of the

outfit. The degree of heat is regulated in the heating iron by a small set screw (C). The degree of temperature, while the instrument is in use, is shown by the thermometer (D). The heat is maintained in the heating iron (E) at the required temperature, automatically, through the series current tap (Fig 1).

I have stated elsewhere that "A mass of cancer is destroyed when the temperature is raised to 45°C. (113°F.) and maintained for ten minutes." This requires a degree of temperature, however, in the electric heating iron that is beyond the point of toleration of the patient, hence the necessity for an anaesthetic. Without an anaesthetic the vagina gradually establishes a toleration for the heat up to 49°C. to 60°C. (120°F. to 140°F.). In some cases this toleration reaches 71°C. (160°F.), but only after several weeks contact with the heat.

My first case of vaginal carcinoma treated with the continuous application of heat was Mrs. H., age 59, who was referred to me by Dr. J. C. Tritch, of Findley, Ohio. This woman was an utterly hopeless case when she first presented herself for examination, July 24, 1915. Her pelvis was studded with carcinoma, as was also her vagina. She was cachectic, she was in pain, she was haemorrhaging, and she was also plagued with the usual foul discharge. July 27, 1915, I opened her abdomen, and tied the internal iliacs and both ovarians. The uterus was the size of an ordinary grape fruit, and its serous surface nodular with cancer. The heating iron was passed to the fundus of the uterus and the heat in the shank of the instrument was allowed to play on the vaginal mucosa with the hope of destroying the infiltrating form of the disease which existed there. This woman made a good operative recovery and returned to Ohio to visit friends. I did not see her again until December 30, 1915. At this visit she was free from cachexia and looked good. But her vagina was full of carcinoma down to and involving the vulva. In addition, she had a vesico-vaginal and a recto-vaginal fistula, as well. All the urine and all the bowel movement came through the vulva. I told her that I would open her abdomen again, and if there was no abdominal metastases I would try to do something for her vaginal carcinoma with its distressing sequelae. The abdomen was opened for the second time, December 31, 1915.

Absolutely nothing was found that indicated cancer in the pelvis. The uterus was free, it was the size of a small senile organ, and there was nothing to indicate cancer on the serous surface. The upper abdomen was also without evidence of metastasis. With the abdomen free of cancer, I felt warranted

in attempting to treat the extensive carcinoma of the vagina by the continuous application of as high a degree of heat as could be well borne without the use of a local or general anaesthetic. It was necessary to use some force in the introduction of the heating iron through the vaginal mass. The heat was maintained at a temperature varying from 48.5°C. to 60°C. (120°F.-140°F) continuously, night and day, except when necessary to empty the vagina of faecal matter or to allow the patient a little exercise.

The result of the continuous application of the heat in this patient was the gradual disappearance of the mass in the vagina. At the end of six weeks it was possible to insert the largest bivalve duck-bill vaginal speculum. There was no cancer to be found as far as the macroscopic appearance was concerned. The anterior wall of the bladder was gone and the rectal mucosa protruded through the posterior vaginal wall as is common in a left inguinal colostomy. This opening was perfectly clean and healthy looking, as was that into the bladder. Digitally, no palpable masses of cancer could be found. The carcinoma had been cleaned up by the heat in a most remarkable way. The patient, however, was not improving physically. It was evident that she was failing. Palpitation of the kidneys developed the fact that they were both enlarged and painful. In other words, she was suffering from a double pyonephrosis. She returned to her friends in Ohio and died in two weeks. A post-mortem was not obtained.

This is not a record of a success, as far as curing the patient. But to me it is the record of a most impressive fact, and that is that the continuous application of a low degree of heat, in one case, converted a vaginal tube, packed with cancer, into one that would admit a large duck-bill vaginal speculum after the heat had been applied continuously, practically, for six weeks. It should be noted that the ureters in this patient were of golf-ball variety, and that they could be catheterized without difficulty through the vaginal speculum.

My second case was Mrs. M., age 63, American, housewife. Four years ago she had a panhysterectomy. As far as could be determined from her history, the operation was done for a suspected beginning malignancy. She did well, physically, until a year ago. At that time she developed frequency of urination, with the accompanying bladder discomfort. There was an offensive, bloody vaginal discharge. Examination showed that there was no cervix and the vault of the vagina was thick and immovable, and ulcerating. Through the cystoscope the anterior and

posterior bladder walls were pushed together for a third of the distance. She had consulted a number of surgeons and all had told her that the condition was inoperable. This patient was put to bed and the continuous application of heat commenced, as described in the previous case. The results were not brilliant, but suggestive. All of the subjective symptoms of which she complained, when she first presented herself, gradually disappeared, so that at the end of four weeks she thought she was cured. But I did not encourage further treatment because I could promise no greater improvement than that already received. This was six months ago, and the patient reports that she has had no further return of the distressing symptoms for which she was treated by the heat.

This case illustrates very well the point that I have already referred to, *viz.*, that the circulating blood protects a mass of cancer when it is quite firm, as was true in this case. Again, the heating iron could not be made to penetrate the centre of the mass, as was true in the first case, where the mass of cancer was not so firm but more of the "everting" type, while the second case belonged to the inverting type.

It is probable that in cavity carcinoma, vagina, rectum and bladder, where the walls are thin and the carcinoma of the infiltrating type, *i.e.*, well spread out, that the method just described will be found more effective and less destructive to the normal tissue cells than the coagulating degrees of temperature necessary when the abnormal growth is extensive.

In closing, I want to assure you that I possess no delusions. Neither am I entertaining any illusions regarding the possibility of the work just described with the continuous application of heat proving to be of only more than academic interest. My pleasure this evening is in bringing to you the report of one case where, after using a coagulating degree of temperature, the patient remained free from her pelvic carcinoma for one year, dying, finally, from a double surgical kidney. But before she died her extensive vaginal carcinoma also disappeared under the use of the continuous application of a low degree of heat, in a way to give us hope, at least, that the type of cavity carcinoma under discussion will become more amenable to the heat treatment when its possibilities are fully developed and understood.

Gentlemen, heat, not fire, will destroy cancer. It merely remains for you and me to work out the great problem of its most efficient application.

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Galesburg, Ill.

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### THE VAGINAL DOUCHE

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BY FRANCES A. HARPER, M.D., PITTSBURG, KANSAS.

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The hygienic value of the vaginal douche is unquestioned, and its occasional employment is to be highly commended. However, the too frequent use of strongly astringent or toxic antiseptics is to be deplored. By thus continually washing away the normal secretions of the parts, which inhibit the growth of disease-producing bacteria, avenues are opened up for various irritations and infections. The normal germicidal properties being thus weakened or destroyed, the parts become greatly lowered in vitality, the ever-present bacteria multiply rapidly, and disease germs gain a ready entrance and find a most favorable soil for their propaga-

tion. Where unhealthy secretions exist, the mildly antiseptic douche will have its greatest utility, in cleansing out and modifying the character of these secretions, closing up avenues of infection, and overcoming the tendency toward the invasion of disease.—*Selected.*

The foregoing paragraph is a brief résumé of an article clipped some time ago from a little pamphlet and gives very concisely *the hygiene of the vaginal douche.*

#### COMMERCIAL PROPAGANDAS.

The abominable "rot" that some vendors of syringes and suppositories are endeavoring to teach young girls and women generally—in order to sell their wares—that they should persistently douche and use antiseptic suppositories, "*especially after each menstrual period,*" cannot be too strongly condemned. Ordinarily, the exercise of care and cleanliness during this period, and a good tub bath at its close, is all the cleansing necessary, and good old Dame Nature does the rest. The normal, healthy virgin need never use the douche, and the ordinary tub or sitz bath usually meets all requirements. These are rational measures which will effectively aid Nature, but one should never attempt to forestall her work, nor take things out of her hands. If, for some good reason, a douche is deemed advisable for a young girl, her mother should be properly instructed to administer it, whenever possible.

#### MENSTRUATION AND THE DOUCHE.

Menstruation is a natural physiological process, as is perspiration, defecation, urination, etc., and is the product of normally functioning organs. Will some one give a good reason why girls are warned against the use of water—especially a *tub bath* (*oh, horrors!*)—during this period, the *fear of water* being instilled into them from its very inception?

It seems to me that there can be no valid reason why, with the exercise of discrimination and proper restrictions, one should not take a warm tub bath nightly before retiring, during this period. I repeat, *with discrimination and proper restrictions!*

#### PROPER USE OF THE DOUCHE.

Now just a few words as to *the proper use of the douche*, for it is very probable that many untoward effects are due to its *improper application*. The vaginal douche meets three indications, *cleansing, depletion and medication*, and such solutions may be

used as are deemed best suited to individual needs or requirements. The douche can or bag should be hung about two or three feet above the pelvis, and the water be permitted to flow gently in and out of the vaginal canal, the patient lying comfortably on her back, with knees flexed and hips somewhat elevated. For simple cleansing or medication the solution need not be more than luke-warm, but for depletion it should be as hot as can be comfortably borne.

For *cleansing*, I would recommend the use of a solution of some good soap, either castile or green soap, in soft, sterile water; for *depletion*, a very copious supply of hot normal salt solution, or simply plain water; for *medication*, whatever medicament is considered indicated in a given case. As a rule, the mildly astringent and antiseptic ones are best, *as they can do no harm*. Whenever it is necessary to make use of the stronger or toxic applications, they should be used only under the supervision and by the advice of a physician. The indiscriminate and long-continued use of strong applications can do very little good, and may be the means of doing a great deal of harm. Such use really defeats the end at which it aims by producing a leathery thickening and hardening of the vaginal mucosa. On the other hand, the use of mild solutions has a softening and relaxing effect upon the vaginal tract, producing a marked action upon the deeper tissues generally, increasing and improving the circulation of all the surrounding parts, thus maintaining the nutrition of the whole generative system.

#### THE DEEP ACTION OF THE DOUCHE.

To my mind, this deeper effect of the vaginal douche is the most important one of all; *the one least considered, least understood*. I desire to emphasize the great efficiency of the *depleting douche* for a few special conditions: In *congestive endometritis*, probably one of the most discouraging conditions to be combated, where, in spite of local and systemic treatment given, the uterus still remains chronically engorged and easy to bleed, I have obtained the best results from the use of the depleting douche. The patient is advised to secure a good small rubber hose attachment for the bathtub—the simple little shower bath device is excellent, removing shower attachment from end. If desired, a nozzle point may be inserted, or the soft rubber tube end may be used, which gives a free, flushing flow of water.

With rubber tube attached securely to bathtub faucet, the hot and cold water may be turned on until the temperature is right, and the douche continued until the hot water supply is exhausted,

which may be twenty minutes or half an hour, following up with a quart or two of some mildly antiseptic solution from the douche can or fountain syringe. Owing to its generally relaxing effect, such a douche is best taken just before retiring at night. N. B.—*The general effects of the prolonged, depleting douche should be noted, and if any marked feeling of exhaustion is experienced, it may be of shorter duration, and the intervals between may be lengthened out.*

This method of using the vaginal douche is especially applicable when treating old pelvic infiltrations, uterine distortions and displacements with fibrosis, as the application of heat improves the circulation and acts wonderfully in softening up the tissues and *securing good drainage*, the great desideratum in all these complicating abnormalities. Thus are the tissues placed in the most receptive state for the application of other remedial measures.

#### AN ILLUSTRATIVE CASE.

Illustrative: A recent case, a young married woman, who had spent several years previous to marriage as clerk in a drygoods store; dysmenorrhea always had been marked. Wondering why she had never become pregnant, she had been examined and advised that surgical intervention would be necessary to overcome the existing retroversioflexion, the "*shortening-of-the-round-ligament*" operation being described as the preferred one. She drifted under my observation. The uterus was very pale and anemic, retrodisplaced and flexed, with marked fibrosis at site of flexure, the entire organ being hard and gristle-like. She complained of an abnormal dryness of the vaginal mucosa, little secretion and no discharge being observable.

It took three or four treatments, with continued supportive packing, to effect a good reposition, after which a soft rubber spiral spring pessary or supporter was adjusted, which served as an effective "*crutch*," and patient was instructed to continue her *special postural exercises several times each day*, and to *take a prolonged douche in bathtub each night before retiring*, and to report for treatment in about three days.

At the expiration of the stated time she returned, and upon being asked how she had been getting along, replied, "Just fine; but it sure kept me busy heating water and taking those douches three times a day!"

Upon examining and noting conditions, I want to say that I have never observed such marked improvement in so short a time in any case ever treated. The uterus seemed soft and velvety, hav-

ing lost much of its fibroid feel, was in splendid position, resting easily within its encircling "crutch," and the color was a deep, healthy pink, showing a wonderfully improved circulation. I never have advised such a douche to be taken oftener than once a day, but certainly this case was a revelation to me. It would almost seem that one might, in certain cases, safely prescribe such a mode of procedure to be followed out "*before meals and at bed-time.*"

#### THE ACTION OF HEAT.

It is a well-known and easily demonstrable fact that the *primary* effect of heat is to relax and bring the blood to the parts, producing *congestion*. Continued to its *secondary* effect, it drives the blood from the parts, producing a comparative *anemia*. A common example of the effects of hot water may be seen in the hands of the washerwoman. First, red, swollen and *congested*; second, pale, wrinkled and shrunken—*anemic*.

The taking of a vaginal douche seems a simple procedure, too simple to merit anything more than: "*And you might take a douche occasionally.*" Not so simple nor so unnecessary as might appear at first sight! The various methods of using, *and their effects*, should be thoroughly studied and understood; and the manner of using to obtain the desired results, and meet indications in a given case, should be intelligently followed out by *both physician and patient*.

#### ANTISEPTICS IN THE DOUCHE.

*Antiseptics.*—It will not be necessary to mention in detail the many good antiseptics in such common use, as each one of us have a few tested and tried favorites which we are in the habit of using in our routine practice, while the various new ones brought to our attention from time to time give us ample opportunity for testing their greater or lesser efficiency and merit.

*Vaginal Suppositories.*—The numerous suppositories put out by the various firms meet special indications and needs, and are often a very convenient and beneficial form of medication to place in the hands of the patient for home use during the intervals between office treatments. Especially are these advised where the mucous membranes are greatly irritated or eroded, and conditions seem to call for continuous specific medication.

In closing, I desire to say that all remedial measures serve a good purpose if intelligently and properly applied when specifically indicated, and discontinued when the need for their aid no

longer exists. *It is so with the vaginal douche, as it is with the curette, the pessary, tamponade and the various other uterine supports and medicaments;* when properly used the results are good; when improperly applied, indifferent or bad results may accrue. Their indications or contra-indications in any given case must be determined by careful examination, thoughtful experimentation and practical experience. But discriminate, *discriminate, DISCRIMINATE!*

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## THE OCCURRENCE AND TREATMENT OF PAIN IN LOCOMOTOR ATAXIA

(The Medical Council.)

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BY EDWARD LIVINGSTON HUNT, M.D.

Assistant Professor of Clinical Neurology, Columbia University, 41 East 63rd Street, New York.

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Pain in locomotor ataxia is one of the leading symptoms of the disease. So common is it that the first stage of locomotor ataxia is described as the stage of pain. It is not limited to the first stage but at that time is most prevalent. It is a very constant symptom, occurring in 90 per cent. of the cases. It frequently ushers in the disease, and may occur for months before being recognized.

The character of the tabetic pain is neuralgic, that is, sharp, violent, and paroxysmal, being neither an ache nor of a dull, boring nature. Patients describe the pain as sharp and shooting; it is short in duration, but frequent in occurrence. It often occurs in a series of paroxysms so as to warrant the designation of crises. The patient will tell you that he has the sensation of being stabbed, then a few seconds of rest, to be followed by another paroxysm of pain, shooting and violent in character. These attacks of pain are so sudden and violent as to cause a patient to start, or if walking, to stop suddenly. I have known a patient, while crossing the street to have an attack of these pains so that he was unable to get across the car tracks, and had to stop the traffic. The violence and suddenness is so great as temporarily to prevent the patient from moving, and to take away his breath. These attacks, which are characteristic of locomotor ataxia, may last for several hours, being made up of a series of short, sharp, pains.

each one lasting a few seconds. After such attacks the patient is very much prostrated.

#### DISTRIBUTION.

The distribution of these pains follows the anatomical distribution of the lesion. As the lesion in locomotor ataxia is almost invariably in the lumbar region, the distribution of the pains is almost invariably in the legs, especially in the thighs from the hips to the knees. In a few instances, however, the location of the lesion is higher up in the spinal cord and then the pains occur in the arms. There seems to be no difference as to the distribution in the two legs. The majority of these patients will tell you that the pains are worse at night and in wet weather. There is no doubt that cold, cloudy and damp days do tend to aggravate these pains; it is a question whether bad weather does not also precipitate the crises. For this reason, many cases of tabes beginning with the sharp shooting pains are diagnosed and treated as rheumatism. It is therefore, of great importance to eliminate locomotor ataxia as a diagnosis in every so-called rheumatic case.

#### STAGES.

While the pains may occur in all three stages of the disease, they are most violent in the first, and least violent in the third. In addition to the characteristic sharp, shooting pains of locomotor ataxia, there occur what the patient describes as burning pains. These resemble more the character of the pain which is prevalent in neuritis, and for that reason are probably due to involvement of the peripheral termination of the sensory neurones. The sensory neurones in addition to this give forth a process which extends away from the spinal cord to the periphery, and, as this is also degenerated, the sensation of pain is transmitted to the skin of the leg.

#### THE LESION.

The principal seat of the lesion in locomotor ataxia is in the neurones of the sensory ganglia of the spinal cord. The character of this lesion is a degeneration of the neurones extending into the fibres passing into the spinal cord and its tracts. Some of these fibres terminate in the spinal cord, some pass on up to the medulla, and some pass down.

#### THE NERVE FIBRES.

There are other sensations occurring in tabes, such as sensitiveness, tenderness, and the so-called girdle sensation. These are

all evidences of irritation in the sensory nerve fibres. They are not disturbances in the parts in which the sensory disturbance is felt but have their origin in the nerve root in the entrance to the spinal cord. They are, therefore, referred sensations, being referred not to the actual site of origin but to the periphery terminal portion from which the irritated fibres arise. These sensations are so common that they have been classified under the head of paresthesia and are recognized as one of the main symptoms occurring in the early stage of tabes. They may precede, accompany, or follow the pains. They are more apt to precede them, and being the result of the same cause as the pains should be classified along with them. The paresthesia occur in fully seven-eighths of the cases.

#### PARESTHESIA.

The distribution of the paresthesia is like that of the pain, wedge-shaped. The distinction in the distribution is very great. There is the typical pain of neuralgia or neuritis; the former follows the course of a nerve, the latter involves the entire end of the extremity, whereas the paresthesia and the pain of locomotor ataxia attack the area supplied by the segment of the spinal cord in which the lesion lies, and as this is wedge-shaped it is only a segment of the leg or arm which will be affected by a sensory disturbance.

#### SPECIAL SYMPTOMS.

There is also great numbness of the soles of the feet, a tingling in the little and ring fingers, and a sensation of constriction about the chest. As the disease advances the pain becomes very extensive in its distribution and, following the centre of degeneration, gradually extends upward, involving the chest and arms. A distressing complication of these attacks of pain is the hyper-sensitive condition of the skin after a violent attack. The patient is not only greatly prostrated but his skin is so tender as to prevent his enduring the contact of clothing or the variations of temperature. These pains are especially sensitive to cold. No especial cause has ever been ascertained to account for these paroxysmal attacks, although some authors have ascribed them to an extension of the disease, saying that the pain was due to a pinching of the spinal roots. The symptom of pain is so distressing, so sudden, and so prominent, as to demand relief.

## TREATMENT.

First, simple external remedies should be tried, such as hot-water bags, the application of sand bags, ironing, ices, iodine, mustard, and plunging the leg in alternating hot and cold baths. Dry cups, the cautery, chloroform liniment, firm bandaging, vibration, massage, and faradization can and should be tried. If in spite of these remedies the pains still persist or tend to become worse, the patient should be put to bed and resort had to internal remedies. For this purpose a host of drugs have been employed. One may choose from aspirin, pyramidon, antipyrin, codeine, salipyrin, and even sodium salicylate. A French method, which consists of injecting a weak solution of cocaine into the subarachnoid space, should also be mentioned. It is neither practical nor free from danger. Finally, there is the hypodermic of morphine. This should only be given by a physician, and then as a last resort. If, however, nothing else relieves the patient it should be given unhesitatingly. It is a curious, but none the less true, fact that the particular remedy which will at one time relieve the attack of pain will at another time utterly fail. Rest is a powerful aid and these patients are greatly benefited by prolonged periods of rest in bed and by nourishing food.

The most efficacious remedy of all, however, is the intravenous or particularly the intraspinous form of medication. It matters very little whether the drug is salvarsan, neo-salvarsan, salvarsanized serum, or bichloride of mercury. Any one of these when injected intraspinously will give very great relief to tabetic patients who suffer from bladder disturbances, stiffness, and pains in the legs. This form of treatment has been especially of value in relieving the attacks of pain. It is far superior to the administration of drugs by mouth and to the hypodermic use of morphine. It is one not sufficiently recognized and one which ought to be constantly made use of. The dosage of salvarsan or bichloride of mercury should be small at the beginning and gradually increased. The treatments should begin with intravenous and later become intraspinous. They should not be given oftener than every ten days to two weeks.

# Dominion Medical Monthly

And Ontario Medical Journal

EDITED BY

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GEORGE ELLIOTT, MANAGING EDITOR.

Published on the 20th of each month for the succeeding month. Address all Communications and make all Cheques, Post Office Orders and Postal Notes payable to the Publisher, GEORGE ELLIOTT, 219 Spadina Road, Toronto, Canada.

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Vol. XLVIII.

TORONTO, MARCH, 1917

No. 3

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## COMMENT FROM MONTH TO MONTH

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To speak of the press is, in a measure, to suggest criticism, for criticism is the mighty weapon of the newspaper press. Wholesome criticism is healthy at pretty nearly all times, but in unprecedented times like the present, it may retard and discourage that unity, decision, and perseverance essential to success. Criticism may be favorable or censorious; and to attempt to describe in one word that censorious criticism with which the press is affected at the present day, a new word, "criticitis," would have to be coined to meet the condition. It is a transient derangement and one that could very readily be remedied by the press itself.

For more than two years now Premiers, Leaders of His Majesty's Loyal Oppositions, Sir Knights, Archbishops, Members of Parliaments and Legislatures, clergymen, lawyers, and others down the respective lines, have been going up and down the country urging unity on the part of the people; but the press continues sick from "criticitis," which tends to inflame, irritate, and make sore.

To speak of war is to suggest bullets. There should be a cessation on the part of the press, in this day, in the making and in the discharging of critical bullets. The people want an united press stimulating an united people to give an united support to the ad-

ministrations of the day in carrying on our part of this great world conflict to a speedy and successful conclusion.

Is the business man who is always criticising, fault-finding, nagging at his office staff or employees, going to get as good efficiency from those employees, as the business man who praises, approves, encourages, points out mistakes, and quietly asks to do better?

And is it not equally so with Governments? When called upon to fight an outside foe, a foe which is ruthless and entertains a deadly enmity against the whole British race, how can Governments put forth all and their best efforts, if they have to take their political lives in their hands as well?

When His Majesty, King George, despatched his message into the North Sea—"Capture and destroy the enemy"—to the Grand Fleet, he no doubt meant that message as much for the Army as for the Fleet, for the British Government, the British Press, for the Canadian Government and the Canadian Press. The enemy means the outside enemy, the foe of British justice, British fair play, freedom, liberty, civilization, all Christendom. The enemy does not mean the personal enemy, nor the political enemy, who are British subjects.

Mr. Edmund Burke, noted orator, renowned parliamentarian, possibly the greatest orator of modern times or of all times, who, in his palmiest days, often filled the House of Commons by the magic of his eloquence, and as often in his decadent days emptied it by his prolixity of speech, once in the course of an impassioned address said: "There are three estates represented in this Parliament,"—the Lords Spiritual, the Lords Temporal, and the House of Commons—"but yonder there in the press gallery sits a fourth estate far more important than they all." The press is the great, moral driving force of any nation; but how can they be that when afflicted with "criticisit" which tends to separate, irritate, and make sore?

There are two questions which every man in Canada must put to himself—"Why am I not at the front? What can I do to help?" This last question is the one which the press of Canada must put to themselves expressly. They are the great moulders of thought and public opinion. WE WANT AN UNITED PRESS STIMULATING AN UNITED PEOPLE TO GIVE AN UNITED SUPPORT TO THE ADMINISTRATIONS OF THE DAY in prosecuting our part of this great war to a speedy and successful conclusion. If the press does that, recognizes the principle of unity amongst themselves first, and adheres to it, then we shall have no fear but that the great might and power of the British Empire will again bring us out triumphant and victorious.

**Health Insurance** measures are impending in the following States of the American Union: Arizona, Arkansas, California, Colorado, Idaho, Illinois, Indiana, Iowa, Kansas, Maine, Massachusetts, Michigan, Minnesota, Missouri, Montana, Nebraska, Nevada, New Hampshire, New Jersey, New Mexico, New York, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Carolina, South Dakota, Tennessee, Texas, Utah, Vermont, Washington, West Virginia, Wisconsin, Wyoming.

The following ten countries already have compulsory health insurance: Austria, Germany, Great Britain, Holland, Hungary, Luxembourg, Norway, Roumania, Russia, and Serbia. Others, as Switzerland, offer subsidies to voluntary health funds.

The Ontario Medical Council, or the Ontario Medical Association, should take time by the forelock. The medical profession should have ample time to study all the intricate problems involved in anticipation of any like measures in any of the provinces of Canada. Legislation may at any moment be introduced into any legislature in the provinces of Canada, and, as such, may be formulated by any layman thus forestalling any action on the part of the profession as a whole. Compensation Acts have become law in some provinces and they have not all done justice to the medical profession. Forewarned is forearmed.

The Provincial Medical Associations, or the Provincial Colleges of Medicine and Surgery, should appoint special committees at their approaching sessions to inquire carefully into the whole subject of health insurance, as it might be applied to any province in the Dominion of Canada.

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*The Clinics of John B. Murphy, M.D., at Mercy Hospital, Chicago.* December, 1916. Philadelphia and London: W. B. Saunders Company. Canadian Agents, The J. F. Hartz Co., Toronto.

The frontispiece is a fine picture of the late Dr. John B. Murphy. Several pages are devoted to the medical history and last days of the renowned surgeon. In addition to several clinical lectures there is a bibliography of his writings. The volume will be preserved as one of the most valuable of the series.

## Reviews

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*A Manual of Nervous Diseases.* By IRVING J. SPEAR, M.D., Professor of Neurology at the University of Maryland, Baltimore. 12mo of 660 pages with 169 illustrations. Philadelphia and London: W. B. Saunders Company. 1916. Cloth, \$2.75 net. Canadian Agents, J. F. Hartz Co., 24-26 Hayter Street, Toronto.

Students and busy practitioners of medicine will find this a concise, yet satisfactory, book on the nervous system and the diseases of that system. It does not pretend to cover the subject fully, but it seems ample for practical, every-day men. One of the special features is the good amount of attention paid to diagnosis and treatment which, in the opinion and practice of men devoting their work to general medicine, will be its most valuable sections or chapters.

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*The Encyclopedia of Foods and Beverages—(A Wonderful Encyclopedia of Foods).*—New York: 50 Union Square. Artemus Ward, Publisher.

A reference work which has won extraordinary wide approval during the last year or so is The Encyclopedia of Foods and Beverages. Recognition of its practical value has come from every part of the United States, including our island possessions, for recent requisitions cover both Porto Rico and Hawaii.

It is now to be found—a much-consulted volume—in hundreds of public and professional libraries; in hospitals and doctors' offices; on the reference shelves of colleges, etc., and it may fairly be pronounced indispensable, for it presents, in quickly available form, information which in many cases is not found in any other work, and which still more frequently would necessitate a search through a dozen or more authorities. No other book or set of books covers the field with anything like the same thoroughness.

The contents include the entire range of foods and beverages, alphabetically ordered and heavily cross-referenced. Each item is treated comprehensively, its habitat and cultivation; how to select, care for and use it. There is no "padding" or redundancy

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—its pages are as entertaining as instructive, but every superfluous line was deleted from the copy. Accuracy was insured by having every item written or revised by special authorities.

The variety of knowledge is very great. *Kangaroo Tails*, as a new meat supply, is immediately followed by *Kanten*, a Japanese “gelatine”; *Kosher* treats of Jewish food restrictions; and *Caviar* and *Truffles* present all the information that an epicure could desire.

For many people this work holds a fascination more impelling than that of a “best selling” novel. It takes you all over the world, and every line you read adds to your erudition. It corrects many popular errors and adds new interest—in some cases, an almost romantic charm—to the foods by which we live.

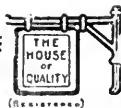
The illustrations include eighty color-plates, which are described by the press as the “most beautiful that have ever appeared in a work of encyclopedic character in this country,” and hundreds of other illustrations (photographs and diagrams), depicting almost every conceivable form of foods, from the *Abalone*, a Pacific coast shellfish, to the *Wintergreen* plant which affords the original flavor of that name.

The encyclopedia sells for \$10.00 (delivery prepaid), and is excellent value for the price.

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*The Prevention of Disease.* A popular book on keeping well. By KENELM WINSLOW, B.A.S., M.D., formerly Assistant Professor of Comparative Therapeutics at Harvard Medical School. 12mo of 348 pages. Philadelphia and London: W. B. Saunders Company. 1916. Cloth, \$1.75 net.

This book of 348 pages is written for laymen. The object is to prevent disease in the individual. There are chapters on proper living; also on diet, exercise, etc. There are methods set forth showing how the individual may protect himself and herself. People nowadays seem to demand some knowledge of themselves, or have returned to the old adage of Pope—“Know well thyself”—“The proper study of mankind is man.” It is therefore a fit subject to put correctly before the people, as too often they take as gospel truth the newspaper writings on medicine of the day. These are oftentimes very inaccurate. A book of this character and scope prevents misconceptions.



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## News Items

Colonel John Taylor Fotheringham, Toronto, has been created a C.M.G.

Dr. John T. Gilmour, Toronto, recently addressed the Woman's Club of Chicago.

Colonel Fred. W. Marlow, A.D.M.S., Military District No. 2, Toronto, has resigned.

Captain Robert J. Wilson, Toronto, came over in February with some returned soldiers.

Dr. John McCollum, Toronto, has gone abroad for hospital duty in connection with military work.

Captain Bryce McMurrich, M.D., Toronto, who has been home from England for a few weeks, has returned to his overseas work.

Major Thomas D. Archibald, and Captain J. Harvey Todd, Toronto, recently returned from overseas for short leave of absence.

The University of Toronto, in all faculties, owing to the acute situation in the coal famine, was obliged to close down for several days in February.

Lieutenant-Colonel T. B. Richardson, late Commanding Officer of the Toronto Military Base Hospital, has been appointed A.D.M.S. at Sudbury.

The Canadian Military Hospitals Commission announce that additional accommodation is to be provided at once for 3,000 more beds in various cities throughout the Dominion.

Dr. W. Dixon, R.A.M.C., recently returned from one year's service overseas, was visiting in Hamilton and Toronto, but has left to resume his practice in Wetaskiwin, Alberta.

Lientenant-Colonel E. B. Hardy, D.S.O., has been given the command of the Toronto Military Base Hospital, succeeding Major Cam. Warren, who returns to the headquarters staff.

Dean J. C. Connell, Queen's University Medical Department, was called to Ottawa by the Militia Department lately to give advice with regard to changing the eye test for Canadian soldiers.

Major McIlwraith, who was in command of the military Hospital, Hamilton, Ont., has been succeeded by Captain McBeth, Toronto, and as a result, Major McIlwraith announces that he will return to private practice.

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The Old Agricultural College building, Winnipeg, has been taken over by the Manitoba Government for the purposes of a hospital and convalescent home for Canadian soldiers. It will be available by the 15th of April, and will have accommodation for 600 beds.

General Carleton Jones has been named Canadian Medical Commissioner and is returning to Canada to co-ordinate the medical services of Canada. Colonel Foster, formerly medical officer at Toronto Barracks, succeeds General Jones as Director-General of Medical Services.

Members of the Academy of Medicine were extremely disappointed on the evening of the 12th of February, when it was learned that Dr. J. C. Beck, Chicago, who was to have been their guest that evening, had, through some misunderstanding at Windsor, been refused admission into Canada.

Colonel Herbert A. Bruce, Toronto, was tendered a complimentary banquet the evening of the 14th of February by many of his medical confreres. The function took place in the King Edward Hotel, and Dr. J. Algernon Temple presided, Dr. J. E. Elliott acting as secretary. Among the guests were Sir William Mulock, Mr. Justice Riddell, Sir Henry Pellatt, and Sir John Eaton. Covers were laid for about 160.

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THE SEQUELAE OF LA GRIPPE.—Among all of the various acute and exhausting illnesses that afflict mankind, there is none that so generally results in distinct prostration as epidemic influenza, or La Grippe. Even the grippal infections which are uncomplicated or unaccompanied by serious organic changes are more than apt to leave the patient in a thoroughly devitalized condition after the acute febrile symptoms have subsided. It is for this reason that the treatment of La Grippe convalescence is of special importance. The anemic, debilitated, depressed patient requires a systemic "booster" that will not only stimulate but revivify and reconstruct. It is distinctly wise, in such cases, to commence vigorous tonic treatment as early as possible, preferably by means of Pepto-Mangan (Gude), the hemic builder and general reconstituent. This standard hematinic increases the vital elements of the circulating blood and, by increasing the appetite and improving the absorptive and assimilative functions, quickly restores both hemic and general vitality.



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## Publisher's Department

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---

A GOLDEN ANNIVERSARY.—In 1867 Hayden's Viburnum Compound was established and first offered to the medical profession, and while no particular celebration is taking place in view of the fact that this product has been before the doctors of this country for 50 years, nevertheless, it is but an evidence of its therapeutic stability and reliability.

In 50 years many products have come and gone, while H.V.C. enjoys the extending confidence of thousands of discriminating clinicians. The great Sims, the Father of Gynecology, thought so well of Hayden's Viburnum Compound that he not only prescribed it, but referred to it in his writings.

Its dependability where particularly indicated, such as in Dysmenorrhea, Amenorrhea, Menorrhagia, Rigid Os, and other gynecological and obstetrical conditions, will be found just as satisfactory to-day as in the time of Sims.

# Dominion Medical Monthly

And Ontario Medical Journal

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Vol. XLVIII.

TORONTO, APRIL, 1917

No. 4

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## Original Articles

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### SOME RADIUM TREATMENTS

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BY GEORGE ELLIOTT, M.D., TORONTO.

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During the past two years, whilst I have been conducting the practice of Dr. Graham Chambers, some thirty odd cases of precancerous lesions, rodent ulcers, and cancers of the lip and skin have come under my observation. As the prevention of cancer is attracting more and more attention each year, and as, judging from official statements annually issued from the office of the Deputy Registrar-General of Ontario, cancer is on the increase throughout the Province, if not in other parts of the Dominion, any treatment which promises good results in the way of prevention, should be periodically brought to the attention of the medical profession. The lesions above referred to have been upon different regions of the face and scalp, and the lower lip. One originating on the anterior surface of the mandible was referred to a surgeon, as it was too far advanced for either radium or X-ray treatment; and, indeed, proved too far advanced for the surgeon, the man only living some four or five months thereafter. One young man of some thirty odd years, with a cutaneous horn on the lower lip, who claimed he had been treated with "hours of radium," was also referred to the surgeon.

The object in reporting these cases is that they present certain points of interest; and, as well, to emphasize the readiness with which most of these conditions respond to radium or X-ray treatment, provided they are taken early. Still, however, as the cases recited below will show, sometimes most excellent and satisfactory results are obtained in epitheliomatous lesions of many years' duration. Although excellent and remarkable results may be obtained in the latter, it is the precancerous lesion which has gone on for several months, and even years, in spite of various treat-

ments, which should receive special treatment such as radium or X-ray affords. Such lesions are persistent white spots on the lips or in the mouth; small black areas (simulating burns); thickened, warty areas, with sometimes rapid growth; skin abrasions which will not heal in three or four months' time, especially in the man or woman of advancing years; local skin defects, as ulcers, warts, fissures, moles, tumors, birthmarks, scaly local patches of seborrheic dermatitis; the dirty yellow scales of senile life; keratoses; small telangiectases; occasionally a persistent spot of eczema; and the round, tense, glistening, pearly (sometimes pinkish) forerunner of rodent ulcer: such lesions should prompt the general practitioner, mostly in country places—for many of these lesions mostly occurring on the face may be justly considered, in some measure, due to almost constant exposure to rays of sunlight—to either employ, or advise, early, now-abundantly-proved measures for their removal, or correction.

The total absence of pain in the application of radium, the very slight pain in the reaction of it, the elimination of the horror of the knife which some patients will hold, and the exceedingly satisfactory cosmetic effect secured must bring down the balance in favor of this method of treatment, when weighed with surgical procedures. Perhaps sufficient time has not expired to state absolutely that the "cure" *will* be a permanent one, for that is what the patient requires. However, the fact is established that these precancerous lesions do remain cured, and there is as much ground for hoping that they will remain cured throughout the lifetime of the patient as do some of those which have been subjected to surgical extirpation. "Watchful waiting" for both methods!

#### CASE 1.

D.J.H.—Farmer, aged 62 years, came for treatment August 6th, 1915. He first noticed a small "blister," as he thought a "coldsore," on the lower lip of the left side, about the centre of the vermillion surface, midway between the mid line and the left commissure; that was some time in May previous. On examining the ulcer which had now formed, it measured about one inch from before backwards and outwards, and extended from near the junction of the skin and mucous membrane, on to the dental surface of the lip. In width it was about three-quarters of an inch. It was of irregular outline, the border being regularly beaded throughout. The base of the ulcer was uneven and secreted a slight discharge; also nodular and infiltrated. Between the finger

and thumb it felt hard and firm. There was no evidence of lymphatic involvement, and no enlargement of submental, or submaxillary glands. It was considered to be a typical, characteristic epitheliomatous ulcer, and an operation was suggested for its removal. The patient was very emphatic, however, that no knife would ever touch it. The reason for his strenuous opposition was sought, and it was ascertained an elder brother had died some eight years previously of a similar condition on the lower lip, after two years of treatment with plasters, etc., as well as two surgical operations. Thirty milligram hours of radium treatment were administered that day, and thirty the following day. He absented himself until August the 25th, when it was found the fore part of the ulcer was healed, not quite one-half. Radium was re-applied to the posterior part of the ulcer, ten milligram hours that day; twenty on the 27th August; twenty on the 30th. On the tenth of September his daughter reported no scab had formed as after the first application. On the 17th of September the patient returned himself. The lesion was found perfectly healed throughout, with a very small dimpled cicatrix on the vermillion surface in front. Up to the time of making this report—going on to two years—it has remained healed. The patient was a pipe smoker, but claimed he had always held the pipe on the other side of his mouth. He further claimed he never felt any pain or soreness at any stage of the duration of the reaction to the radium, or during the repair of the lesion.

#### CASE II.

J.H.—Farmer and mail driver, aged 56 years, a younger brother of D.J.H., presented himself for examination on September 12th, 1916. He smoked very little, and had never had any severe illness. His father and mother had lived to a very old age, and had never had cancer. This patient also stated a small "blister" appeared on his right lower lip on the vermillion border, about midway between the middle line and the right commissure. A scab formed, and the lesion would not heal, and it had been going on for several months. Some treatment had been given on different occasions. There was some infiltration, though not marked; and no lymphatic or glandular involvement. With the first radium treatment that day of twenty milligram hours, the crust came off with the applicator, when it was noticed that a scab filled an oval ulcer, a half-inch in width from side to side. On the 14th of September twenty-five milligram hours of radium were administered; on the 15th, twenty. The patient returned

in two weeks, having injured the lesion with a crust of bread, some hemorrhage resulting, and thus forming a rather large, black-looking crust. He was advised to be more careful in his eating, and to report in six or eight weeks' time. He returned for examination on November 20th, with the lesion perfectly healed, the only noticeable trace of it, or the treatment, being a bare spot just below the vermillion border where the hair of the beard had been destroyed.

#### CASE III.

R.G.—Widow, of apparent age, 55 years, was referred by Dr. J. A. Stevenson, Trenton, Ontario. She stated she had never had any severe sickness but just a little soreness in the muscles at times. She presented herself for treatment on the 4th of December, 1916, and stated she had had attacks of eczema on head and back, which went away in the summer time. Her mother's sister had a skin cancer removed from behind the ear about two years previously. About seven years ago a little water "blister" appeared just above the outer extremity of the left eyebrow. It would scab over, feel itchy; at times when the scab was scratched off, or knocked off, weep. In September, 1916, it began to enlarge, and when examined by me, was rather smaller than a five cent piece. The surface of the ulcer was irregularly nodular, and the border rather even, but slightly rolled. There was very little infiltration; the discharge was always watery. The lesion, which was considered to be a rodent ulcer, appeared as though it might bleed readily. On Dec. 4th, twenty milligram hours of radium; on the 5th, the same; on the 6th, the same. Under date February 5th, 1917, the patient writes: "I am very glad to tell you the scab is off my forehead and my sore is gone. The skin is only a little red." The patient always considered this was a part of the eczematous condition from which she had suffered for a number of years.

#### CASE IV.

Mrs. C.—Apparent age 65 years, came in December, 1915, referred by Dr. W. T. Parke, Woodstock, Ontario. The interesting point in this case is that the lesion occurred on the lower lip of a woman. There was a rounded ulcer with thickened border and base, the former being raised and quite regular in outline. The lesion had persisted for two years, crusts forming every little while; and the ulcer would not heal under repeated treatments. Radium was applied forty milligram hours in divided doses. Reaction in this case occurred on the eighth day with considerable

pain. Two or three scabs formed in succession in the course of the following weeks, when the patient returned for examination some six weeks later. As there was still a little thickening, radium was applied for another forty milligram hours. Late in the spring the patient advised that the ulcer had healed perfectly, and to date there has been no recurrence.

#### CASE V.

Mrs. A.—Aged 82 years, referred by Dr. L. P. Bowers, Port Hope, Ont., Nov. 9th, 1915. About the middle of the nose of the right side, there was an ulceration with jagged edge, possibly the size of a ten-cent piece, and filling the ulcer was a round, soft, blackened neoplastic growth, the size of a ripe cherry. This would bleed readily. The lesion was of several months' duration. Twenty milligram hours' radium was administered on the 9th, and thirty on the 10th. In January, 1916, the doctor reported it was going on fairly well. In reply to a request, Dr. Bowers wrote further, on March 20th, 1917: "She has made a good clean skin. There is just a discoloration, but smooth."

#### CASE VI.

Mrs. M.—Apparent age 56 years, also referred by Dr. Bowers. The patient came for treatment late in January, 1916. There was a craterform epithelioma, of triangular shape, on the right ala nasi, midway between the tip of the nose and the naso-labial fold of that side. It was given fifty to sixty milligram hours treatment in divided dosage. Not having heard of the result of treatment, I wrote Dr. Bowers for information, to which he replied, March 20th, 1917—fourteen months afterwards—"The patient has made a splendid recovery—not a trace of the trouble."

#### CASE VII.

D.B.—Farmer, aged 55 years, referred by Dr. J. A. McEwan, Smith's Falls, Ontario, presented himself December 12th, 1916. He has always enjoyed the best of health in every way. At the age of forty years, a small papule, which scabbed over, appeared on the upper lip under the left anterior naris. The lip was covered with a heavy moustache at the time. He would pick the scab off occasionally, and as time went on the papule began to ulcerate. When seen there was a large, scalloped out ulcer, the size of the palmar surface of the distal phalanx of the thumb. It extended from the left naso-labial fold over to the septum, which was also

eaten through on the skin surface, to the depth of one-third of an inch. The ulcer extended down to the vermillion border of the lip, pretty nearly involving the entire surface of that half of the upper lip. In depth it was almost down to the mucous membrane. The anterior floor of the nasal canal and the left surface of the septum were slightly involved, and for the past two years there was almost constantly a hemorrhagic plug in the left nostril. The ulcer had a scanty secretion and bled occasionally, the whole base of the lesion being a dirty brown color. It was diagnosed as rodent ulcer. Not much encouragement was held out to this patient of either amelioration, or of any good results being obtained by radium treatment. However, he was exceedingly anxious to have it tried—stated he had only heard of radium a week or so before—and would be satisfied if it could be retarded in its growth. Radium was applied twenty milligram hours on the 13th of December, two applications being necessary side by side to cover the lesion. Twenty milligram hours were also administered by tube in the cleft in the septum just above the philtrum. The patient returned January 16th, 1917, when almost the entire ulcer was filled in, and a good scar with very little retraction of the lip. A small ulceration remained just below the left nostril, which extended up into the nostril. The radium applicator was applied to that, one corner of it being inserted into the nostril so as to act upon the lower part of the septum. Thirty milligram hours were given; also tube for twenty milligram hours to the split skin in front of the septum. On the 6th of March, the patient again returned. There had been no bleeding from the nostril for two or three weeks, and it was quite clear of any blood clot. The outside ulceration of the lip was perfectly healed. As there was some slight thickening in the left naso-labial fold, radium was applied thirty milligram hours. The cleft in the septum was uniting by several bands of adhesions. To a very small surface of the septum which appeared a little eroded, twenty milligram hours was administered by tube.

This was a rather large lesion, of long duration, unsightly in appearance, and quite inoperable, which healed surprisingly rapidly and kindly, and presents a striking example of the efficacy of radium in those lesions which have even gone far beyond the precancerous stage.

26 Gerrard East;  
219 Spadina Road.

**PAINLESS CHILDBIRTH***(The Therapeutic Gazette.)*

BY EDWARD P. DAVIS, M.D.,

Professor of Obstetrics in the Jefferson Medical College of Philadelphia.

So long as labor has been intelligently studied, efforts have been made to lessen the suffering which attends childbirth. One of the earliest substances used for this purpose was crude opium partially dissolved in wine or a compound of aromatics. Forty years ago, when hydrate of chloral was in common use, experienced obstetricians were accustomed to soak tampons of cotton in a saturated solution of chloral hydrate in glycerine and place them against the cervix of the primipara when dilation was slow and painful to lessen the suffering and further dilation. Hydrate of chloral was given internally until the patient became under its full physiological effect to lessen suffering. When cocaine was introduced solutions of cocaine were injected into the cervix and into the skin of the perineum and the surrounding tissues.

The method of nerve blocking so extensively employed in surgery, is proposed for perineal anesthesia in labor. Novocaine and adrenalin chloride are injected bilaterally into the perineum. King (*Surgery, Gynecology and Obstetrics*, November, 1916) states that in one hundred cases his results have been good.

The discovery of ether and chloroform led to their immediate adoption by obstetricians. When chloroform was first known, it is alleged that a European queen awaiting confinement summoned Sir James Simpson and instructed him to use this agent to lessen her pain. It had been objected by the clergy that it was written in Scripture that women should bear children in pain and travail, and therefore that efforts to lessen the pain of parturition were contrary to Scripture. To this the Queen replied that the ecclesiastic who promulgated this doctrine had never borne a child, that she had passed through that experience previously, and that she proposed to have chloroform, and she did.

In recent times the attention of the profession has been largely directed to the question of antisepsis and asepsis in the conduct of labor, and naturally the public mind has been drawn more in that direction. All obstetricians have habitually employed ether or

chloroform, and frequently opium, to spare the patient unnecessary suffering and fatigue.

A distinction should be made between labor pains and the suffering incident to parturition. The phrase labor pains refers to uterine contractions, and it is interesting to observe in a spontaneous and almost natural birth that severe uterine contractions affect the pulse and heart scarcely at all. The sympathetic nervous system does not seem to be extensively involved in this process. An explanation of the fact may be found in the anatomical conditions of the nerve supply of the uterus. Through its ganglia and nerve fibres it is capable of contractions independent of stimulus received from the brain or spinal cord; hence its action, although severe in actual force, exerted often, has surprisingly little effect upon the patient's general condition. The suffering of parturition depends upon the sensitiveness of the brain and chord and not necessarily upon the uterine contractions. This is illustrated in the case of a highly sensitive, mentally and physically degenerate woman who cannot bear pain, and who may fail absolutely in labor, require delivery under an anesthetic by forceps, and readily pass into shock when the uterus is emptied. On the other hand, the sound and vigorous peasant woman or a negress who has worked in the field, may give birth to children with very little disturbance of brain and cord.

The problem before the obstetrician at present in the conduct of labor is the question of protecting the brain and cord of the patient from the sensation of pain, and from the psychic and emotional element which depresses the woman when she feels that she is becoming exhausted. This may be done by endeavoring, during pregnancy, to bring about as nearly a physiological condition of the patient as possible, re-enforcing her general energy and health; by ascertaining positively if any insurmountable obstacle to spontaneous birth is present; by interfering to terminate labor before exhaustion develops; by using a psychic influence during labor; by employing drugs and anesthetic vapors as indicated; and by prompt resource to obstetric surgery when necessary. The problem is a large one and often difficult of solution.

We are concerned at present with those means of treatment which are not surgical, and we shall not consider further the question of the hygiene of pregnancy.

The psychic influences which should prepare the mind of the patient for spontaneous and successful labor are often overlooked. An atmosphere of hope, cheerfulness, and kindness should surround the expectant mother. Forebodings and unnatural fear

often have a physical cause, and the occurrence of such should lead to a thorough physical examination of the patient. The relief of a toxemic condition is usually followed by a marked improvement in the mental state. The proverbial tendency of gossips to tell a pregnant woman stories of painful, difficult, and fatal labor should be guarded against and carefully checked. At a time like the present, when the horrors of war are widespread throughout the earth, the woman expecting labor should avoid the details of battle and the sufferings which accompany war. Faith, whether religious or philosophical, or in an individual, is a valuable psychic agent and should be invariably encouraged. If the patient asks questions concerning approaching labor, they should be answered in such a way as not to depress nor rouse suspicion. She should be assured that she will receive at that time every assistance and every care to avoid suffering.

During the first stage of labor the attentions of a skilful nurse are often of great value in soothing and encouraging the patient. This is the period when drugs may be used successfully to calm the brain; and, should labor begin in the evening, to secure sleep. As labor progresses into the stage of active expulsion, the suffering of the patient is often more readily borne than during the first stage. The complete pause between expulsive pains in normal cases gives the opportunity for absolute rest which the nagging pains of the first stage have made impossible. At the actual moment of expulsion pain caused by the pressure of the presenting part on the nerves of the pelvic floor may induce spasm and further extensive laceration, and here the element of pain should be eliminated as completely as possible. It is often interesting to observe that treatment addressed to suffering during labor often takes the brake from the uterus, and is followed by better and more efficient uterine contractions.

Within recent years the attention of the profession has been drawn to two methods for securing painless childbirth: the first, the so-called twilight sleep of Krönig and Gauss; the second, inhalation of nitrous oxide and oxygen.

Regarding the first little need at present be said. The subject has been thoroughly discussed by the profession. At present, the popular agitation concerning the method has entirely subsided, and the activities of the agents of foreign drug manufacturers intent on the sale of their preparations of scopolamine have ceased. The profession need scarcely be reminded that a concerted effort was made to secure American trade in scopolamine by foreign manufacturers, and that the popular agitation concerning the

method was largely promoted by these agencies. The climax of vulgarity was reached when a moving picture exhibit of parturition was attempted and promptly repressed.

At present it is recognized that this method, to be successful, must be carried out strictly in the manner described by those who have used it most successfully abroad. First, the psychic control of the patient must be absolute; isolation, the absence of friends and relatives, the presence of a skilled attendant, the authority of professors, must all be invoked. Reliable preparations of scopolamine only, with morphine, must be employed. The effort is made to annul memory in the patient, not to prevent pain, and when this is considered and the large part played by psychic influence is observed, it will be seen that the method depends quite as much on psychic control as on the influence of drugs. The results of the method have been the prolongation of labor, a considerable percentage of asphyxia in the infants, and a considerable percentage of forceps applications. That the psychic condition of these patients has been profoundly influenced is evident, for in cases in which the memory of pain was not annulled, excitement, often of a violent nature, developed. Practical experience with the method has failed to make it an established and routine practice in the best obstetric clinics of the United States.

In the *British Medical Journal* of October 14, 1916, Haultain and Swift described their experiences with the use of morphine and hyoscine in the Royal Maternity Hospital of Edinburgh. They practically make no difference between hyoscine and scopolamine and consider that they have followed out the method described by Krönig and Gauß by employing hyoscine and morphine. They remark that the pharmacology of hyoscine and scopolamine, as it is sometimes called, is not very definite. In their paper they give no evidence of having read Krönig's description of his method, and their references to the literature of the subject are confined exclusively to English authors. In describing their treatment they would begin injections when the os admits two fingers and pains are regular with primiparae; with multiparae the method cannot be employed too early after pains have started. They would not repeat the morphine in the latter part of the second stage, fearing asphyxia of the child. If the hyoscine is not taking effect in the second stage during its latter part, it is well, they say, to give the mother a slight whiff of chloroform; thus the hyoscine is allowed to work and the patient passes into the condition of "twilight sleep." The baby should be immediately

removed to another room, so that the mother cannot hear the cries of the child and remember that she has given birth to an infant. In their conclusions they state that it is of great value in a prolonged second stage due to a large head or slightly contracted pelvis, and that it has the advantage over chloroform that uterine contractions are not diminished. As proof of the value of the method, they state that the great majority of their patients got out of bed on the third day after labor. This late contribution to what in America is a stale novelty does not increase our confidence in this treatment. The use of ether during the second stage of spontaneous labor does not seem to have occurred to the writers, and the proposition to increase the action of hyoscine by administering chloroform does not appeal to us.

Very recently the attention of obstetricians has been drawn to the administration of nitrous oxide and oxygen to secure painless childbirth. The statement has been made that this may be safely done through practically an entire labor, that it may be entrusted to a nurse who has had no special training in anesthesia, that the method is absolutely devoid of danger, and that under this anesthetic obstetric operations can readily be performed. Unfortunately, these claims are not borne out by experience. Nitrous oxide and oxygen have been used by skilled anesthetizers for some time for minor procedures, and often in beginning surgical anesthesia followed by ether, but it is observed that some patients do not do well with this, and that irritation and excitement ensue, and sometimes disturbed breathing, so that other anesthetics must be employed. Furthermore, muscular relaxation will not readily be secured in parturient women by nitrous oxide and oxygen, and if it is desired to secure relaxation of the pelvic floor for the introduction of the forceps or to stop the contraction of the uterus for the performance of version, the obstetrician will do well not to trust to nitrous oxide and oxygen. No anesthetic is safe in untrained hands, and ether dropped on gauze or upon a clean handkerchief is far less dangerous than any anesthetic known at the present time. In the wards of the Maternity Department of the Jefferson Hospital, nitrous oxide and oxygen have a fair trial, and it is recognized that in a considerable number of cases a spontaneous labor is rendered less distressing than when this agent is not employed. Some patients are excited and not soothed by it, while in no case is a prolonged or critical operation undertaken under this anesthetic. In private practice the writer has given it a fair trial, administered by a skilled anesthetist. In some cases in which it was desired to induce labor or to produce therapeutic

abortion, or to perform some manipulation which might be painful but not prolonged, nitrous oxide and oxygen given skillfully have been useful, but private patients who have in former labors taken ether and in later confinements have been given nitrous oxide and oxygen have expressed their dissatisfaction with the latter method.

What does the reliable experience of the obstetric profession indicate in this matter at present? During the latter weeks of pregnancy and the first stage of labor, psychic influence and good nursing will do much. In the tedious and nagging pains of the first stage the bromides may suffice, but a reliable and efficient remedy is opium, morphine and atropine given once hypodermically, and if needed codeine given later. During the expulsive stage of labor small quantities of ether with oxygen or freely diluted with air; at the moment of expulson, the patient to inhale the ether as quickly and freely as possible, and the anesthetic to be removed so soon as the child is born, may be used. For repair of lacerations after labor, ether again is safest. Very little is usually required. For prolonged and critical obstetric operations, oxygen should invariably be given with ether. The amount of irritation is less, asphyxia is less, and subsequent nausea and vomiting are less. Nitrous oxide and oxygen administered by a skilled person may be used cautiously, but they are not to be relied upon to secure muscular relaxation.

Strictly speaking, painless childbirth is very difficult or practically impossible except in cases of elective operation where the patient is delivered without labor. During labor the general principle true in surgery is especially true obstetrics: "Safe anesthesia is only possible when the anesthetic, whatever it be, is given by a skilled anesthetist."

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### RESUSCITATION IN VARIOUS FORMS OF ASPHYXIA

It not rarely falls to the lot of a medical man to be called upon to carry out artificial respiration, because of a complication arising from a surgical operation, in cases of drowning, or when illuminating or coal gas has been inhaled. Many years ago the writer of this article and Dr. Martin carried out a research upon the quantity of air which could be propelled into and out of the lungs by Marshall-Hall and Sylvester methods, and found that the latter was more efficient than the Marshall-Hall procedure. Since then Schäfer has brought forward his method of artificial respiration,

in which, it will be recalled, the patient lies with the anterior surface of the body downward and the head turned to one side. The operator then kneels astride of the patient's loins and by pressure upon the floating ribs, just above the kidneys, cause ingress and egress of air from the chest. Schäfer seems to have proved that this method moves a greater volume of air than the two older ones, and he and others who have investigated it in England have heartily recommended it for the resuscitation of the apparently drowned. In our own limited experience with it, it has seemed disadvantageous in that it is more prone than the other methods to dislodge the contents of the stomach, pumping them into the esophagus and pharynx, and so causes their introduction into the air-passages. On the other hand, it can well be urged that the posture of the patient and the movements of the physician can more readily displace fluid from the bronchial tubes when this method is followed than when the patient lies upon the back as in the Marshall-Hall or Sylvester methods.

Many years ago Fell introduced a mechanical apparatus for the development of artificial respiration which, in some respects, resembled those forms of apparatus which are used in the physiological laboratories for the maintenance of artificial respiration in animals, and since that time a number of more or less complicated mechanical devices, to which such names as pulmотор and lung-motor has been applied, have been invented. In the use of all of these an endeavor is made to provide the patient not only with air but with oxygen as well, and most of them have gauges and valves whereby the supply of air and oxygen can be readily adjusted. In cases of apparent drowning such apparatus cannot be as useful as the older forms of artificial respiration, since it does not tend to pump the liquid out of the lung, but, on the contrary, may serve to drive it into the smaller bronchioles; where it will do damage and from which it cannot be displaced. Furthermore, if these mechanical devices are not used by those who are skilful in their employment there is a chance that too high pressure will be employed and that artificial emphysema will ensue.

In this connection an investigation which has been carried out by Henderson is of considerable importance and interest. He points out that superintendents of hospitals, mines, gas works, electric light and telephone companies, fire departments and persons in charge of swimming places are continually asking for advice as to the relative merits of the different kinds of apparatus which are now on the market, which are variously called pulmometers, lung-

motors, etc. As a result of a consideration of all the forms of apparatus which are commonly employed he concludes that approved, prompt manual methods of artificial respiration will accomplish more for resuscitation from drowning, electric shock, or asphyxia than is possible with any form of apparatus. One of the reasons for this probably lies in the fact that the application of the hands to the chest induces what has been called in Europe "cardiac massage," or, in other words, exercises an effect upon the congested right heart and the engorged great veins of the chest. It is also important that those who are called upon to resuscitate persons suffering from asphyxia shall be thoroughly trained in the use of the manual methods, since the delay in sending for mechanical devices may be fatal. In other words, every minute that passes after respiration has apparently ceased greatly diminishes the chance of resuscitation, and while a proper apparatus correctly used and immediately employed in suitable cases may be better than the manual method, practical experience shows that it is rarely immediately at hand.

In gas and smoke cases Dr. Martin and the writer proved, many years ago, that the addition of oxygen was most efficacious, and if a complete artificial respiration apparatus cannot be had oxygen gas should be freely given to the patient, mixed with atmospheric air, care being taken, however, that it is not driven into the lungs under such pressure as to induce distention and emphysema.—*Therapeutic Gazette.*

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### FIRST AID SYSTEM\*

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By HART E. FISHER, M.D.,  
Of Chicago, Chief Surgeon, Chicago Elevated Railroads.

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The subject of first aid to the injured has received a great amount of publicity during the past two years, mainly in connection with the Red Cross Society and the National Preparedness movement, while the same work in industrial, transportation and manufacturing life has been neglected.

The purpose of this paper is to give in brief an outline of a First Aid System that is adaptable to any company employing a

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\* *Interstate Medical Journal.*

small or large number of employees, who from the nature of their work are liable to meet with accidents.

First aid like preparedness has its advocates and its opponents in the medical profession. Some of the prejudice against first aid by the layman is caused by the poor, inefficient and careless manner in which this work has been done in the past.

There are many cases on record, no doubt, where through bungling and incompetent first aid services more or less harm was done to the injured patient; but first aid work properly arranged and maintained in a systematic manner is a boon to mankind and is the means of saving life and minimizing pain to an injured person in time of accident.

Where first aid work has met with failure in the past and been frowned upon by medical men, was due to lack of proper system in organizing, equipping and instructing the layman in the fundamental principles of this important work.

The author is personally acquainted with certain facts, that in one or two instances corporations have furnished elaborate first aid equipments to their employees and neglected to instruct them in the use of same, with the result that the injured employee was afraid to use the equipment and in many cases, where it was used improperly, great harm was done.

No employer would think of placing some delicate piece of machinery for use in his shop without carefully instructing the employee how to use it. Without instruction in any new work there is bound to be failure through ignorance of the principles of same.

In organizing a first aid system that will be efficient, the essential factor is to secure a suitable first aid cabinet and have it supplied with those supplies necessary to give intelligent treatment to the injuries that arise in that particular shop or department.

From a long study and experience in this line of surgical work, the author has devised a cabinet that is applicable to shop, railroad, school and home first aid.

The type adopted is a wooden cabinet, 24x12x8 inches, so constructed as to open like a suitcase. The shelving is so arranged that the supplies fit in snugly and are not thrown about when the cabinet is carried. Metal clips are provided to hold the bottles in place.

This cabinet is hung on the walls of the shop, car or home, and when needed for use inside or at a distance it can be taken down and carried by means of the handle on the top.

Simplicity in construction with avoidance of fancy trimmings, glass doors, etc., provides a sanitary cabinet and one to be had at small cost.

The contents recommended below are sufficient to care for a large number of injuries and are all that is necessary to treat any injury that may arise. The surgeon in charge of this work can add to this equipment as he sees fit, in order to meet with the requirements of his particular work.

When material has been used out of the cabinet it should be replaced at once with new, so as to have a complete kit at time of accident, as described below:—

- 4 1-ounce boxes sterile cotton, for reinforcing burn dressings.
- 6 2-inch sterile gauze bandages, for tying splints, dressing burns, etc.
- 6 2-inch sterile gauze bandages, for wound dressings.
- 12 1-inch sterile gauze bandages, for finger injuries.
- 12 Glassine envelopes containing six layers of gauze, 3x3 inches, to be used in contact with wounds.
- 1 Pair scissors (blunt points).
- 1 Medicine dropper (glass).
- 1 Bar germicidal soap, for cleansing hands of operator.
- 1 2-ounce tube of sterile petrolatum for burns.
- 1 Roll zinc oxide adhesive, 5 yards x 1 inch.
- 1 Bottle containing 24 sterile cotton wrapped applicators, for applying iodine to wounds and for removing foreign bodies from the eye.
- 2 Clean towels for placing about the injured part and for use as slings.
- 1 Piece of heavy linen tape, 1 inch x 1 yard long, for use as a tourniquet in connection with a lead pencil.
- 2 ounces boracic acid (water solution) for use in eye cases.
- 2 ounces aromatic spirits ammonia, for stimulation.
- 2 ounces tincture iodine in a rubber corked bottle. This bottle to have different shape from the other bottles. Great care must be exercised in instructing the layman in the proper use of iodine.
- 1 Card for receiving patient's name, nature of injury and treatment given.
- 1 Non-technical first aid booklet which is in accordance with the instructing surgeon's methods.
- 1 Printed set of rules on first aid attached to the cabinet.

The above material in the judgment of the author is all that is necessary for intelligent first aid work.

The mistakes most often encountered with the usual first aid outfit, as supplied through the trade, is that they contain too great a supply of material and are too complicated for the average layman.

With the cabinet a United States Army stretcher and blanket are recommended. There is a folding stretcher on the market that is very convenient in carrying, by reason of its compact nature.

### INSTRUCTION.

The surgeon in charge of this work should select only those employees who from past record and observation seem best fitted to be entrusted with this important work. Personal instruction should be given by the surgeon either by lectures or demonstrations to individual and to small group classes of employees. The surgeon should avoid in his lectures all medical technical words and illustrate his talk with practical demonstrations. Each employee should be obliged to practise the various first aid measures until he is thoroughly acquainted with each.

Personal instruction should be given the employee in assisting in dressing injuries in the medical department, as this will instill in them confidence and a sense of responsibility.

These lectures and instructions should be given at frequent intervals so as not to allow the employee to become deficient in his first aid work.

Systematic inspection and reporting to the surgeon on the condition of the first aid outfits should be made weekly.

### CONCLUSION.

The Chicago Elevated Railroads have 128 first aid stations with a complete first aid outfit at each station. These stations are located at all yards, shops, power houses, terminals, etc.

During the past three years 4,300 men received treatment for various injuries by the men in charge of these stations, without one case of questionable harm being done the patient. The end-results of this system are derived from the fact that there has not been a death in three years from wound infection. There have been no deformities or cases needing hospital treatment for wound infections, and the number of simple infections has decreased 85 per cent.

In closing, there remains one fact and that is, first aid work must be under the supervision of a surgeon and not left to the layman to work out for himself.

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Dr. George P. Sylvester, Toronto, is to examine Chinese coolies for the French Government.

Surgeon-General Guy Carleton Jones has returned to Ottawa and will be Commissioner to co-ordinate the Canadian A. M. Services with the overseas services in England and France.

## Reviews

*The Encyclopedia of Foods and Beverages—(A Wonderful Encyclopedia of Foods).*—New York: 50 Union Square. Artemus Ward, Publisher.

A reference work which has won extraordinary wide approval during the last year or so is *The Encyclopedia of Foods and Beverages*. Recognition of its practical value has come from every part of the United States, including our island possessions, for recent requisitions cover both Porto Rico and Hawaii.

It is now to be found—a much-consulted volume—in hundreds of public and professional libraries; in hospitals and doctors' offices; on the reference shelves of colleges, etc., and it may fairly be pronounced indispensable, for it presents, in quickly available form, information which in many cases is not found in any other work, and which still more frequently would necessitate a search through a dozen or more authorities. No other book or set of books covers the field with anything like the same thoroughness.

The contents include the entire range of foods and beverages, alphabetically ordered and heavily cross-referenced. Each item is treated comprehensively, its habitat and cultivation; how to select, care for and use it. There is no "padding" or redundancy—its pages are as entertaining as instructive, but every superfluous line was deleted from the copy. Accuracy was insured by having every item written or revised by special authorities.

The variety of knowledge is very great. *Kangaroo Tails*, as a new meat supply, is immediately followed by *Kanlen*, a Japanese "gelatine"; *Kosher* treats of Jewish food restrictions; and *Caviar* and *Truffles* present all the information that an epicure could desire.

For many people this work holds a fascination more impelling than that of a "best selling" novel. It takes you all over the world, and every line you read adds to your erudition. It corrects many popular errors and adds new interest—in some cases, an almost romantic charm—to the foods by which we live.

The illustrations include eighty color-plates, which are described by the press as the "most beautiful that have ever appeared in a work of encyclopedic character in this country," and hundreds of other illustrations (photographs and diagrams), depicting almost every conceivable form of foods, from the *Abalone*, a Pacific coast shellfish, to the *Wintergreen* plant which affords the original flavor of that name.

The encyclopedia sells for \$10.00 (delivery prepaid), and is excellent value for the price.

# Dominion Medical Monthly

## And Ontario Medical Journal

EDITED BY

**Medicine:** Graham Chambers, R. J.  
Dwyer, Goldwin Howland, Geo. W.  
Ross, Wm. D. Young.

**Surgery:** Walter McKeown, Herbert  
A. Bruce, W. J. O. Malloch, Wallace,  
A. Scott, George Ewart Wilson.

**Obstetrics:**  
Arthur C. Hendrick.

**Pathology and Public Health:** John  
A. Amyot, Chas. J. C. O. Hastings,  
O. R. Mabee, Geo. Nasmyth.

**Dermatology:** George Elliott.

**Physiologic Therapeutics:**

J. Harvey Todd.

**Psychiatry:** Ernest Jones, W. C. Herrman.

**Ophthalmology:** D. N. MacLennan, W. H. Lowry.

**Rhinology, Laryngology and Otolaryngology:** Geoffrey Boyd, Gilbert Royce.

**Gynecology:** F. W. Marlow, W. B.

Hendry.

**Genito-Urinary Surgery:** T. B. Richardson, W. Warner Jones.

**Anesthetics:** Samuel Johnston.

GEORGE ELLIOTT, MANAGING EDITOR.

Published on the 20th of each month for the succeeding month. Address all Communications and make all Cheques, Post Office Orders and Postal Notes payable to the Publisher, GEORGE ELLIOTT, 219 Spadina Road, Toronto, Canada.

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Vol. XLVIII.

TORONTO, APRIL, 1917

No. 4

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## COMMENT FROM MONTH TO MONTH

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The Health of the Grand Fleet must ever be of intense interest. The magnificence of its determination is grand and inspiring. Much has been written and said of the wonderful and remarkable achievements of maintaining the health of the army. The health of the Grand Fleet has almost been taken for granted.

In an address, delivered before the Medical Society of London, which is published in *The Lancet*, February 15th, Dr. H. D. Rolleston, Temporary Surgeon-General, R.N., plays the white light upon a most interesting phase of war work. At the beginning of the war, the permanent Medical Service of the Navy was immediately expanded, and great improvements along many lines instituted. Retired members of the Service were mobilized; officers of the emergency list; and medical officers of the Royal Navy Volunteer Reserve; temporary surgeons passed through the large navy hospitals; ten consultants appointed; certain medical students partly qualified, particularly for destroyers which ordinarily did not carry medical officers; men with laboratory knowledge were introduced into the hospitals; the Royal Naval Nursing Service almost trebled; sick-berth staffs from the St. John Ambulance Brigade; ambulance trains; hospital trains; hospital ships.

The Service afloat consists of the Grand Fleet, the Mediterranean Fleet, and that in the Adriatic.

Dr. Rolleston reports the health of the Grand Fleet as being likely better than in times of peace. "The average daily percentage of sick in the whole Fleet in 1913 was 2.37; in 1914, a little lower, 2.03." Although cases of sickness have been sent off to hospitals more rapidly than in peace times, the average daily sickness has been almost always under 1 per cent., *i.e.*, fallen since the outbreak of war. Most of the sickness was of a minor character, such as influenza and boils. So far no case of smallpox has occurred in the Fleet, indeed we have not seen that it has been in evidence in the Army either, and if it has appeared it must have been very limited.

Both the Mediterranean and Adriatic Fleets seem to have been all the time in good health, except during August, October and November, 1915, when almost every ship of the Mediterranean Fleet was attacked by epidemic gastro-enteritis, which died down in December of the same year. The health of the Adriatic squadron at that time was excellent.

The good bill of health of the Fleet is attributable, like that of the Army, to preventive medicine. It is put down by Dr. Rolleston to the following factors: 1. The isolation of the Fleets—no chances for alcoholic excesses or for venereal diseases; 2. Quarantine precautions in shore drafts; 3. Lectures on personal hygiene by medical officers, especially on alcoholic excesses and venereal diseases. As an illustration of the benefit derived therefrom the return from leave of 1,100 men from one battleship is cited. There were only three cases of gonorrhea and one of syphilis developed. 4. Measures to relieve the monotony of the grim, silent watching and waiting for the enemy—games, sports, entertainments and periodical leave; 5. Improvement in the ventilation of the ships, the best methods of ventilating modern battleships having been adopted.

Altogether the report is an exceedingly satisfactory one; and recruits for the Naval Service enlisting in Canada may be assured that the well-being of their health is as well looked after in the Navy as in the Army. Both must remain for long years to come outstanding features of a war which has been stupendous in its magnitude.

**CORRESPONDENCE***To the Editor:*

MONTREAL, CANADA, March 7th, 1915.

DEAR SIR.—As we understand there has been some doubt in the public mind as to the continuance of our work, we should be greatly obliged if you would publish the following official facts:

The American members of the Commission for Relief in Belgium have been asked by the Germans to remain at their posts, and the work in Belgium is therefore proceeding under exactly the same guarantees as hitherto.

The fact that the Commission for Relief in Belgium continues to receive large sums from the Allied Governments is in itself enough to prove that they, who are most interested, have no reason to believe that Germans are directly benefiting. Furthermore, the Commission have effected an arrangement with the British Government on one side and the German Government on the other by which an acceptable lane for Belgian relief ships between North American ports and Rotterdam has been fixed so as to ensure the continuity of supplies.

The Commission for Relief in Belgium is facing to-day a monthly deficit of \$3,000,000. Hence it is more than ever in need of the full-hearted support of the public.

Thanking you in anticipation, we remain,

Yours truly,

Hon. Secretary-Treasurer.

**ONTARIO MEDICAL ASSOCIATION**

THIRTY-SEVENTH ANNUAL MEETING AT TORONTO, MAY 30TH,  
MAY 31ST, JUNE 1ST, 1917.

Wednesday, May 30th.—10 a.m., Meeting of Committees.  
11 a.m., Business meeting. 12.30, Luncheon in building. 2 p.m., General sessions: "Symposium on Venereal Diseases," Drs. Connell, Begg, Goldie, Hair and others; address in gynecology, Dr. Chipman, Montreal, "Treatment of Prolapsus Uteri." 4 p.m., Garden party. 8 p.m., General session: President's address; address in medicine, Dr. Christian, Boston, "Nephritis and Diuretics."

Thursday, May 31st.—9-12, Meeting of Sections. 2 p.m., General session: Address in surgery, Dr. W. W. Babcock, Philadelphia, "The Evolution of the Surgery of the Biliary System"; "Laryngectomy," Dr. McKenty, New York. 3.30 p.m., Business meeting. 4.30 p.m., Garden party. 8 p.m., Evening session: "Recent Advances in the Operative Treatment of Intracranial Conditions," Dr. William Sharpe, New York.

Friday, June 1st.—9-12, Section meetings.

#### SECTION IN GYNECOLOGY AND OBSTETRICS.

Demonstration of the right oblique diameter in midwifery, Dr. McCabe. Treatment of fibroids, Dr. Angus McKinnon. Ligamentous suspension with intra-abdominal treatment of cystocele in uterine prolapse, Dr. Klotz. Some points in the pathology of the endometrium, Dr. B. P. Watson. The toxemias of pregnancy, Dr. Frawley. Caesarian section, Dr. McIlwraith. Retained placenta, Dr. W. J. Mabee. Other papers are promised by Dr. Holmes, Dr. Oliver, Dr. Ernest Williams.

#### SECTION IN SURGERY.

Varicose veins, Dr. E. R. Secord. Mortality incident in surgery, Dr. J. K. McGregor. Surgical treatment of gastric ulcer, Dr. D. C. Balfour. Post-operative treatment of abdominal cases, Dr. I. Olmsted. Gastric Stases, its clinical significance, Dr. W. J. McDonald. The Cystoscope, an essential in genito-urinary surgery, Dr. Colin L. Begg. Exophthalmic goitre, Dr. H. Laekner. Surgical kidney, Dr. Mowbray. Suprapubic prostatectomy, Dr. N. H. Beal.

#### SECTION IN MEDICINE.

Gonorrhreal septicemia, Dr. Stobie. Blood urea, Dr. Campbell. Cyclic vomiting, Dr. J. Loudon. Other papers have been promised by Drs. W. P. Caven, Minns, Bates, McPhedran and Richardson.

The Section in Ear, Eye, Nose and Throat has also arranged a good programme and exhibition of cases.

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Every man overseas from University Lodge, A. F. and A. M., Toronto, established in 1910, is an officer. There are forty members on this honor roll. The list includes three colonels, three lieutenant-colonels, six majors, fourteen captains and fourteen lieutenants.

## C.E.F. AND TYPHOID FEVER

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The Department of Militia and Defence have just announced that for the twelve months ending December 31st, 1916, 167 cases only of typhoid fever were reported as having occurred amongst the many thousands of men of the C. E. F. in Canada, and this, notwithstanding the fact that typhoid fever is a disease especially affecting young adults from seventeen to thirty years of age, and a disease which is endemic in all parts of Canada.

This comparative freedom on the part of the C. E. F., is seen to be most striking when it is recalled that, during the Boer War, one man out of every nine in the British Forces in South Africa was invalidated through this disease, and that in the Spanish-American War, of 107,000 men in the camps at Tampa, Florida, and elsewhere, who had not left the shores of the United States, 20,000 contracted the disease. The remarkable change can only be attributed to the process of inoculation.

The Provincial Board of Health for Ontario has supplied to date all the typhoid and paratyphoid vaccine used by the entire Canadian Expeditionary Force (about 450,000 men). In all, nearly 600,000 doses have been supplied free of cost.

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## TREATMENT OF SYPHILIS

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Reasoner in the *Military Surgeon* for September, 1916, writes on this subject and reaches these conclusions:

1. Syphilis should be diagnosed and treatment begun at the earliest possible moment. The dark field—or in the absence of this, staining methods—should be employed as an aid to diagnosis. The organism will not ordinarily be found for several days after the application of antiseptics, especially mercurial salts.

2. The interpretation of the Wassermann reaction is sometimes a matter of difficulty. In the absence of history or manifestations, a single positive reaction is not sufficient evidence upon which to base a diagnosis. In the presence of suspicious manifestations, one or more negative Wassermann reactions is not sufficient evidence upon which to base a diagnosis. Other procedures may be necessary to establish the diagnosis. Even with a uniform tech-

nique the reaction of an individual may be subject to unaceountable variations.

3. The greatest good will be accomplished by the administration of both salvarsan and mercury. The best results are to be expected when treatment is begun early. The administration of mercury should be pushed to the physiological limit. The soluble salts of mercury have some points of superiority over the insoluble salts. Treatment by way of the mouth does not give the best results. The results obtained from inunctions, when properly given, compare favorably with those from any other form of mercurial administration. Potassium iodide is not in itself an anti-syphilitic drug. Its greatest field of usefulness is in the presence of tertiary gummatous lesions in conjunction with anti-syphilitic drugs. Frequent examinations of the urine are desirable, as both salvarsan and mercury may exert an untoward effect upon the kidneys.

4. It is believed that syphilis is curable in a certain percentage of cases. A tentative standard has been proposed. Further investigation is desirable along these lines.

5. The results obtained from spinal fluid examinations are of great value. These examinations should be more generally practiced than is now customary.

6. The provocative Wassermann reaction is a refinement of the ordinary reaetion. Information may be obtained from this reaction which can be secured in no other manner.

7. Rubber gloves are a desirable protection to the operator in handling syphilitics.

8. In positive cases, further information may often be obtained from a titration of the Wassermann reaction.—*Therapeutic Gazette*.

---

Dr. John N. E. Brown, Detroit, is spending a holiday in New Orleans.

Dr. James Douglas, New York City, Chancellor of Queen's University, Kingston, Ont., offers \$100,000 toward a fund to develop the Kingston General Hospital with a view to bettering the teaching facilities of Queen's University Medical Department.

Surgeon-General George S. Ryerson, Toronto, has been appointed Honorary Surgeon-General, succeeding to the title held by the late Sir Frederick Borden, M.D., who was made Honorary Surgeon-General for Canada in 1908 by the British War Office.

# Frosst's Blaud Capsules

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## News Items

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Colonel Herbert A. Bruce, Toronto, has returned to France.

Dr. A. E. Garrow, Montreal, is spending some weeks at Atlantic City.

Dr. Charles O'Reilly, Toronto, recently paid a visit of some days to Montreal.

Dr. Charles Sheard, Toronto, has returned from a trip through the Southern States.

Dr. Duncan N. MacLennan, Toronto, is away from Toronto for a ten days' holiday.

A large hospital for convalescent soldiers is to be established four miles from Montreal.

Dr. Harrison, formerly of Tillsonburg, Ont., has joined the C.A.M.C., at Calgary, Alberta.

Dr. S. S. Membery, Adolphustown, Ont., is now Fleet Surgeon of the 10th Cruiser Squadron.

Major Donald, M.D., Vancouver, B.C., is appointed Commandant of a Canadian hospital ship.

Dr. George R. McDonagh, Toronto, was reported sick in California, but came east to New York.

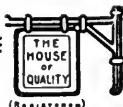
Captain Hague, Belleville, Ont., has been appointed surgeon and medical officer to the 235th Battalion.

Drs. Harry B. Anderson, Crawford Seadding and Bert Fraleigh, Toronto, have been on a trip to California.

Dr. John L. Davison, Toronto, has retired from general practice and will hereafter do office and consultation practice.

The Ontario Health Officers' Association will be held in the University Buildings, Toronto, May 29th and 30th, 1917.

Colonel Perry G. Goldsmith, M.D. (Toronto), is appointed President of the Officers' Standing Medical Board in England.



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MONTREAL

WINNIPEG

Colonel Prowse, Winnipeg, is commanding officer of the Patricia Convalescent Hospital recently opened at Shorncliffe, England.

Colonel George S. Rennie (Hamilton, Ont.) has assumed the entire duties of Assistant Medical Director at Shorncliffe, England.

Dr. Beverley Milner, 328 Bloor Street West, Toronto, desires to announce that in the future he will confine his attention exclusively to general surgery.

Colonel A. T. Shillington, Ottawa, has left Shorncliffe to be Commandant at the Kitchener War Hospital, Brighton, England, where there are 1,500 beds.

Dr. Malcolm Kinsella, North Bay, Ont., a house surgeon of the Prince of Wales Hospital, London, England, was recently married to Nurse Jean Young, New Zealand.

Word has been received from France of the death of Major Herbert Jones, M.D., from pneumonia. Major Jones was a specialist in children's diseases in Hamilton, Ont.

The old Loyola College, Montreal, has been suitably remodelled and will now be a Convalescent Hospital under the Canadian Military Hospitals Commission for returned soldiers.

Dr. Theodore Janeway, New York, is to deliver the address in medicine at the annual meeting of the Canadian Medical Association in Montreal in June; Dr. Francis J. Shepherd, the address in surgery.

Colonel John T. Fotheringham, C.M.G., Toronto, has been appointed to the position of Inspector of Military Hospitals in Canada.

Colonel Lorne Drum, Ottawa, is appointed Assistant Medical Director of the 5th Division; Major C. A. Young is appointed Deputy-Director; Colonel J. W. Bridges, Assistant Medical Director at Bramshott.

Dr. James D. Curtis, St. Thomas, Ont., has accepted a position on the Surgical Staff of the Ontario Workmen's Compensation Board. Dr. Curtis has recently returned from England, where he served a year on the R.A.M.C.

# BRAND'S ESSENCE OF BEEF AND OF CHICKEN

For  
Exhaustion  
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Weak  
Digestion



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After Loss  
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From Any Cause

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## Publisher's Department

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DIRECTIONS FOR ADMINISTERING ANEDEMIA.—With due respect for the physician, we suggest the following directions: In obstinate cases of long standing, Ascites or general Anasarca, it is preferable to begin the administration of *Anedemin* in afternoon, having the patient take two tablets every other hour until 12 to 14 have been taken; the following morning instruct the patient to take magnesium sulphate in doses of tablespoonful every hour until there has been several watery discharges. (We suggest magnesium sulphate, although the physician may administer any of the more palatable salines; of course, not contra-indicated.) After the effusion has been dispelled it is then advisable to continue *Anedemin* in doses of four to six tablets daily, occasionally using a mild laxative. *Anedemin* can be given with perfect safety, unless the patient should be debilitated and cannot stand the loss of effusion; it is then advisable that the physician administer *Anedemin* in smaller doses. *Anedemin* will be found to be powerful in removing the effusion, and we make the above statement because we would not want it condemned should the patient be rendered too weak.

The physician should prescribe all useful medicinal and hygienic agents, such as rest, proper diet, tonics, etc., administering *Anedemin* intelligently and persistently. It does not produce nausea.

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THE PNEUMONIA CONVALESCENT.—In spite of all of the modern advances in scientific therapy, and the improvements in the general handling and management of acute infectious diseases, Acute Lobar Pneumonia still deserves the title ascribed to it by Osler: "The Captain of the Men of Death." There are, however, especially during the fall and winter months, many cases of the lobular or irregular pneumonia that so often complicates or follows La Grippe. When this condition supervenes it is more than likely to follow a subacute or chronic course and convalescence is frequently long delayed. Under such circumstances, in conjunction with treatment designed to hasten resolution, a general blood tonic and vitalizing agent helps materially to shorten the convalescent period. Pepto-Mangan (Gude) is of much value in this field, because it not only increases the solid elements of the blood, but also acts as a true tono-stimulant to the organisms generally. As



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Pepto-Mangan is free from irritant properties and constipating action, it is specially serviceable in the reconstructive treatment of the devitalization following the pneumonia of the aged.

---

**IN CHILDREN AND IN OLD PEOPLE.**—Kidneys are often affected by exposure to cold or chill. These disturbances may range from sudden and frequent desire to urinate to the severe forms of urinary irritation. The first is usually accompanied with free and excessive flow of water, where in the latter case there will be but a small quantity of water, frequently passed with difficulty and pain. If the cause is not removed, this disuria with frequency may continue day and night until cystitis occurs, or until a spastic renal condition is found to be present, with active congestion followed quickly by acute inflammation. The remedy is heat persistently applied externally to produce relaxation and Sanmetto in drachm doses for adults every hour until relief; then less often as indicated, and half doses for child in like manner. Particularly is it true with men suffering from prostatic trouble that they are often affected by exposure to cold or chill, causing congestion at the bladder neck, with frequent desire to urinate, and urine passed with difficulty and pain. Hot applications externally, either moist or dry, and Sanmetto in teaspoonful doses every hour until relief, is the remedy.

---

**HAYDEN'S VIBURNUM COMPOUND.**—(Thomas Christy and Co., 4, 10 and 12 Old Swan Lane, Upper Thames Street, London, E.C.)—Virburnum prunifolium has some reputation as an ovarian and uterine anodyne, and has therefore been used in amenorrhea, menorrhagia, and in obstetrical practice generally. There appear to be different views in regard to its efficacy, some authorities stating that it gives excellent results in the treatment of dysmenorrhea, after-pains, and ovarian irritation, and commanding it in cases where there is a disposition to miscarriage, while others state that experience fails to justify belief in the qualities claimed for it. Hayden's viburnum compound, however, is said to be made from viburnum opulus (Guelder rose), which is regarded as being more effective than viburnum prunifolium. Hayden's compound contains also dioscorea (colic root) and scutellaria lateriflora, described as being useful in neuralgia and convulsive affections. This compound is evidently favorably regarded in American gynecological practice, and is supplied exclusively to the qualified practitioner to be used under his direction.

# Dominion Medical Monthly

And Ontario Medical Journal

Vol. XLVIII.

TORONTO, MAY, 1917

No. 5

## Original Articles

### THE RADIUM TREATMENT OF MALIGNANT DISEASE OF THE LIP AND SKIN

By DR. W. H. B. AIKINS, TORONTO.

The treatment of malignant disease of the lip and skin may be considered from several points of view. Cancer of the skin, more particularly when it involves the lower lip, frequently attains a high degree of malignancy, and appears to be a regional rather than a local process, the neighboring glands being usually affected. As it is generally preceded by a pre-cancerous lesion of some kind, such as a scaly spot, excoriation, wart or mole, it follows that the persistence of such lesions for an unduly prolonged period should excite suspicion, and lead to the adoption of prophylactic treatment, in which radium applications are of great value.

Until comparatively recently the best routine treatment of cutaneous epithelioma was by an early operation, and in this way it is possible to remove the growth in many cases. In epithelioma of the mouth and lower lip, however, the diagnosis is seldom made before the adjacent lymphatics are involved, and anything like complete excision is therefore impossible, in a large number of cases, owing to the extent of the growth and the nature of the tissues invaded. The frequency of early metastasis in these cases will be apparent from Murphy's statement that "in a series of cases of epithelioma of the lower lip 52 per cent. without demonstrable metastasis at the time of operation, and 76 per cent. of those who showed enlargement of the glands at the time of operation, subsequently died of cancer."

Since the introduction of radium into the field of therapeutics, treatment by radium rays has come to be the method

of choice in cutaneous epithelioma. Amongst its advantages are the ease of application and lack of discomfort to the patient with which it can be applied, the complete destruction and eradication of the cancer cells, the stimulus to healing induced by the rays, and the excellent cosmetic results, which are far superior to those after operation or caustic applications, which leave a large and retracted scar.

Epithelioma of the skin seems to form an exception to the general rule that operable cancer should be operated upon, as in many cases the better cosmetic results and the comparative infrequency of recurrence after its use, render radium treatment preferable to surgery, and many are now of opinion that operation should be undertaken only in exceptional cases.

Before applying radium, however, it is now my invariable practice to curette away as much as possible of the cancerous tissue.

In a recent paper Dr. Frank E. Simpson discusses the difference in the action of radium and x-rays. Both have a selective and inflammatory reaction. In regard to the x-rays the former is much the most important, there being considerable risk in the systematic production of a destructive inflammatory reaction by them. Radium on the other hand, when used with proper precautions, is a valuable destructive agent, and it has been proved conclusively that it is capable of destroying the epitheliomatous tissue. As our object in treatment is to completely eradicate every cancerous cell, and nothing short of this is likely to be effective in preventing recurrence, this destructive action of radium is of the greatest significance in this connection, more especially in view of the frequency of recurrence after surgical operations, even when they include wide removal of the adjacent tissues. From a cosmetic point of view also it is preferable to surgery in many cases, in which operation would entail considerable disfigurement and mutilation, such as epithelioma in various parts of the face.

Observers everywhere are now agreed that radium is the ideal method of treatment in cutaneous cancer, and during the twelve years which have elapsed since its introduction evidence has continued to accumulate as to its remarkable efficacy in these conditions. The results in some of the cases reported have been simply marvellous, and cases in every stage of the disease, even the most advanced, have yielded to treatment, sometimes after proving refractory to all other methods.

Dr. W. B. Chase reports a case in which an extensive epithelioma of the face disappeared after three applications of radium, as did also another affecting the face and another the hand. In large cutaneous epithelioma he plunges needles containing radium into the growth. He has found this form of treatment beneficial in several cases, and is of opinion that it is likely to prove preferable to other methods. A case of mammary epithelioma in a woman of 80, entirely disappeared after it two years ago, and has since remained perfectly healthy.

Dr. Riddell reports a case of epithelioma of the right temple in a man who had suffered from lupus for twenty-five years, and had x-ray treatment for seven years. A recurring fungating growth was treated by two applications of radium with good results, and up to the time of writing there had been no recurrence.

In a case reported by Dr. Russell Boggs the growth had its origin over the bridge of the nose, involved the canthus, and was destroying the lower lid and conjunctiva. He states that healing is so perfect that it is difficult to believe that such a condition has ever existed.

Dr. McCurdy's statement that one of his cases is a "wonderful triumph for radium" certainly cannot be disputed. The epitheliomatous mass involved the entire chin on both sides. The mass was honeycombed with ulcers discharging pus, and the lower lip almost completely destroyed. The condition improved after three or four applications of radium, and six months later there remained only slight induration below the left angle of the mouth and a small ulcerated spot, both of which lesions were rapidly disappearing. The improvement subsequently continued.

An experience of several hundred cases has convinced me that no other agent can compare with radium for the treatment of such lesions. Small rodent ulcers respond almost magically, whilst other more extensive cases, which are of several years' duration, and have resisted all sorts of therapeutic measures, including the x-rays, incision, and various methods of physical therapy, have also been favorably influenced by radium.

The case reported was not only a retractable epithelioma of long standing, but in addition presented certain other characteristics, which render it of special interest at the present time.

On May 22nd, 1915, Dr. A. T. Emmerson of Goderich referred to me for Radium Treatment a patient with the following history:

He was a man of 61 years of age, at present a mill-hand, but had formerly seen service in the British Army. Eight years previously an ulcer had appeared on his right temple, which had gradually increased in size, and at the time he came to me there was an ulcerated area, roughly circular in shape, extending from the anterior margin of the auricle to half an inch beyond the outer margin of the orbit (three inches), and from the hair margin above down for two or three quarters



Fig. I.

of an inch to a point opposite the lower margin of the external auditory meatus. The margins of the ulcer were elevated, and its base irregularly covered with granulations, from which a sero-purulent discharge exuded (Fig. I). It proved to be a typical cutaneous cancer.

A radium plaque 4 centimetres square containing one centigram of radium element was applied over the ulcer, remaining *in situ* for twelve hours. The posterior portion of the ulcer, where the thickening of the edges was most marked, received an exposure of twenty-four hours.

The patient was sent home after receiving instructions to dress the ulcer with boracic acid compresses. Six weeks later

he came to see me again, presenting the appearance seen in Fig. II. The edges of the ulcer were soft and flattened, except anteriorly, where a slight elevation still persisted. The ulcer had healed with the exception of an area in the centre, one square inch in diameter. The part over which complete epithelialisation had not yet taken place presented the appearance of a clean, healthy ulcer.

The treatment given on this occasion was the application for fourteen hours of the same radium plaque covered by two millimetres of aluminum. In the anterior portion, where slight thickening persisted on the margins of the older ulcer,



Fig. II.

a smaller plaque, of similar relative strength, was applied for fourteen hours.

The patient was asked to report again at the end of another six weeks, but failed to do so, and no further information was received until November, 1916. Dr. Emmerson then wrote to me with regard to a similar case, and in his letter referred to the results obtained with the first patient. I cannot do better than quote from it:

"Mr. F. told me that you had taken a photograph of his face each time he went down. If that is so, then they would be complete if you had one of his face as it is at present time. He is with one of the battalions that is going, or is now on its

way overseas. I had him go to a photographer, and he has taken a picture which I send you under separate cover. He did not retouch the negative, thinking it would be better not for the purpose for which you might require it. The picture does not do justice to the healed part. You can understand that the surface is more or less uneven, also there are one or two large veins running across it. These have given shadows, which account for the unevenness of the picture. The result is excellent, and the skin over it is becoming firm." (Fig. III.)

This report was certainly most gratifying. The fact that

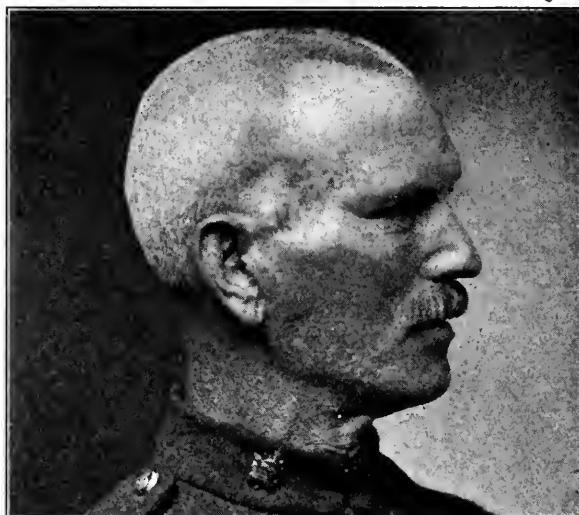


Fig. III.

the ulcer had completely healed was in itself a cause for great satisfaction, but the additional information that the patient had passed a Medical Board as "fit" for service in the Canadian Expeditionary Force considerably increased my satisfaction, and adds a peculiar interest to the case, which has led me to publish it.

It now seems to be the general opinion that in epithelioma of the skin we have one of the most promising fields for radium therapy, which often succeeds when other measures have failed to give relief.

Cases have been recorded in which the use of radium has resulted in improvement, even when metastasis has occurred

before the patient comes under observation. Dr. Casper Gilchrist (*Maryland Med. Jour.*, July, 1915, 157) reports three cases of the kind. In the first a man of 65 suffered from epithelioma of the wrist, with extensive metastasis to the upper lip and adjacent region. Treatment resulted in healing of the lip and clearing away of the primary cancerous deposit in the wrist, with great improvement in the general condition. In the second case there was epithelioma of the bridge of the nose, with metastasis to the left side of the neck. There was marked improvement, but the patient subsequently died of pulmonary embolism. In the third case there was an epithelioma of the lower lip, with metastasis to the cervical glands and subsequently to the sternum. After treatment by radium the patient was discharged as clinically cured.

All writers on the subject emphasize the importance of giving prophylactic doses of radium at intervals after apparent cure, and of keeping the cases under observation for a prolonged period, with the object of detecting recurrence at an early stage.

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134 Bloor St. West.

## THE SYNERGISM OF LACTUCARIUM AND ETHYL CARBAMATE: A PHARMACEUTICAL AND CLINICAL STUDY

BY PAUL BARTHOLOW, M.D., NEW YORK.

Lactucarium and ethyl carbamate, for all their chemical difference, have much in common. Both have narcotic properties which are distinct without being toxic, prolonged without being deep. Both have the same effects on the respiration. The idea of the syrup of lactucarium as something that may be used to dissolve ethyl carbamate in order to promote its action is a practical one. Pharmaceutical students have always set a high value on good combinations, but have never admitted to favor anything whose properties have not shown them forth. As regards syrup of lactucarium and ethyl carbamate we must first dispose of two preliminary difficulties. These are: the preparation of the syrup and the careful treatment of the lactucarium used. They are of the first importance and may be thus introduced.

Lactucarium is the inspissated juice of *Lactcea Sativa* or *Lactue Virosa*. In this sense the term is exclusively employed by scientific writers (Lenoir, Ann. der Chemie, Bd. 60, S. 63). Lactucarium should be carefully distinguished from the expressed juice of the lettuce. Of late years, however, in the books of compilers of pharmacology, the two things have become confounded—a confusion that has led so able a pharmacologist as Schmiedeberg (*Grundriss der Pharmakologie*) to dismiss the subject of lactucarium, in a few, vague sentences. It is true that the official syrups, extracts, troches, etc., possess few medicinal virtues. Hence the use of these for lactucarium is a gross and gratuitous blunder, the former being no true representatives of the properties of the inspissated juice of the lettuce. Briefly the case is this: If lactucarium and the official syrups are held to be identical, therapeutics is poorer by a useful, and richer by a superfluous medicine.

The term lactucarium was long ago used by Duncan to denote the residue after evaporation of an alcoholic tincture of the inspissated juice of *Lactcea Sativa*. It is a brown, very bitter substance. This bitter taste is a decided drawback, and I do not profess to understand how such a medicine could ever be accepted. I must remark that the bitter taste must be overcome to a certain extent, though it should not wholly be avoided, being a necessary

element of the syrup. Of Duncan's crude and unpalatable tincture, he says: "From trials made with this solution, both on myself and others, I have no doubt that it is a powerful soporific."

As to the dried residue, he writes: "From trials which I have made with it, when exhibited under the form of pills, it appears to me to be little inferior in soporific action to opium." It is scarcely necessary to observe that this opinion might well create some skepticism. Aubergier's syrup of lactucarium, prepared in a similar manner, is obtained from *Lactcea Virosa Alliiflora* or giant lettuce. A careful account of Aubergier's syrup appeared in the *Revue Scientifique*, 6<sup>e</sup> éme année, p. 735, and in the *Bulletin de l'Academie de Médecine*, t. XVI, p. 1,192. The following is a fair summary of these reports:—

"M. Aubergier was led to choose the giant lettuce because it belongs to a stable race which reproduces itself with the same attributes for a great many years, and further, on account of its yield being abundant and of superior quality.

Lactucarium is obtained by making transverse incisions in the stalks of the giant lettuce at its flowering season. The Auvergne lactucarium of M. Aubergier possesses some of the physical characteristics of opium. As a comparison it may be said that lactucarium if not provided with such energetic properties as those of its powerful rival, is, at the same time, not burdened with the inconvenience attending the strength of the latter."

"Attempts have been made in Germany, and other countries, to manufacture lactucarium, but the outcome is merely *an impure preparation destitute of therapeutical properties*."

Aubergier's syrup made from giant lettuce has been much employed by French physicians—G. Sée, Troussseau, Dieulafoy, Gueneau de Mussey, Caron, Hayem, Potain, Grancher, Bouchard, Monod and others. The reader will naturally think, after reading the statement that this syrup "is not burdened with such energetic properties" as those of opium, that it contains no quantity of this drug. The fact is that a slight proportion is added, about 12 per cent. of morphine. "Observations on the Auvergne Lactucarium (Milky Juice of the Lettuce) by H. Aubergier, 1883."

Duncan's tincture is too acid to be popular. However, it does possess sedative properties, but so unpalatable that it is not easy to swallow a dose. ("Observations on the preparation of Soporific Medicines from Common Garden Lettuce," read in the Caledonian Horticultural Society, March 6, 1810). It is used with

especial benefit in the cough of phthisis. (Observations on Pulmonary Consumption.) Here he unconsciously followed Cox.

Aubergier's syrup, without opium, is too mild in its action. It is prepared as follows:

Alcoholic extract of lactucarium .....	3 grammes
Candied sugar .....	1,000 grammes
Distilled water .....	500 grammes
Orange flower water .....	20 grammes

Exhaust the extract by washing twice with boiling water, so as to leave only a tasteless and odorless residue. Macerate and make 500 grammes with water. Melt the sugar and pour it in the solution; clear with white of egg; boil; pass through a percolator and add the orange flower water. This makes a clear syrup, but the preparation thereof is no light task. The taste is extremely sweet, and the dose, a teaspoonful has no therapeutic effects. Hence the need for adding some opium is quite obvious. In other respects, the process is worth notice. It is far better to wash with boiling water than with benzene, as is done in the U.S.P. formula.

Opium has too many objections to its use, and it is not a synergist of lactucarium. In Aubergier's syrup lactucarium is merely a vehicle. It remains therefore to discover if there is not some way to find a drug that truly produces and extends the effects of lactucarium and, if so, to combine them in a proper and palatable manner. There is one drug that meets these requirements exactly, an alcohol of the fatty series,  $\text{NH}_2\text{COOCH}_2\text{H}_5$ , or ethyl carbamate. First, it has no effect on the heart; secondly, the respiration during sleep is described as regular and slightly more shallow, that is, the breathing is equable and easy, relieving cough, and, thirdly, there is a general lessening of nervousness and restlessness so that sleep is caused both directly and indirectly. These results have been determined experimentally by Krogh, of Copenhagen, and by Bianchi, while they have been demonstrated clinically by Bertling and Göppert and Klotz. The drug was introduced by Schmiedeberg, who regarded it as a powerful narcotic which did not affect the heart, and this view has been generally supported by others, for example, Ohrwall, Göppert and Bethe. Thus, we have in ethyl carbamate a true narcotic, acting on the lipoid cells of the brain in man and vertebrate and invertebrate animals, while lactucarium, as will be shown, has similar effects.

The two drugs must be combined in the following way if there is to be an adequate effect. The best English lactucarium is used. Of this take:

Lactucarium .....	10 parts
Ether .....	10 parts
Alcohol .....	6 parts
Sugar .....	65 parts

To the lactucarium contained in a flask or other vessel tightly closed, add the ether and macerate with occasional agitation for 24 hours, at the end of which time add 10 parts of water, and having shaken the flask well, distil off the ether by the immersion of the flask in hot water, heat being continued for a short time after the odor of ether has entirely disappeared; when cool add the alcohol and again macerate for 24 hours with frequent agitation. Then transfer the contents of the flask to a percolator, and when the liquid has ceased to pass, gradually pour on syrup of orange flower water, until 30 parts of percolate are obtained; set this portion aside and continue the percolation with water until the percolate passes tasteless, evaporate the last portion to five parts and add to the portion set aside. Filter the mixture and pass through the filter a sufficient quantity of the syrup of orange flower water to weigh 35 parts. Having placed the sugar in a percolator pour the menstruum upon it, cover well and set aside that a syrup may be formed.

Practice and skill are both required to make this syrup effectual. But, when it is thus made, it is clear, of sufficient strength, and not too sweet. The bitter-sweet taste of the U.S.P. syrup, and its taste of benzene, are grave defects. Now, ethyl carbamate is soluble in one part of water, it is saltish, and makes a clear syrup, with no precipitate, with syrup of lactucarium:

Ethyl carbamate .....	20.
Syrup of Laetuearium .....	60.
Syrup of Cinnamomi .....	40.
Alcoholis .....	30.
Water ad .....	160.

Sig: A tablespoonful night and morning.

Of the composition and pharmacology of lactucarium we have several studies. Chemically lactucarium is a complex substance, but, it must be owned that we have no pharmacological demonstration of its effects in application. They can only be learned by observation. The subject falls naturally into two divisions.

Composition: Lactucarium contains lactucon, a bitter substance, first obtained by Lenoir. It is probably an organic base, as Walz and Aubergier contend (*Pharm. Centralblatt*, 1840, S. 53; *Comptes Rendus*, 1842, p. 923.). It must not be confounded with lactucin, nor, as is commonly done, with lactuicerin.

Lactuicerin was derived from lactucarium by Thieme (Ludwig, *Archiv. f. Pharm.* Bd. 100, S. 1,291). It is a fine powder crystallizing out of alcohol; it contains two esters—a-Lactuicerol and b-Lactuicerol (*Ber. d. d. chem. Ges.* Bd. 12, S. 10). Hesse (*Zur Kenntniss des Lactuicerins*, *Ann. d. Chemie*, Bd. 234, S. 243; Flückiger and Hanbury, *Pharmacographia*, 1874, S. 243).

Kassner, however, was unable to find b-lactuicerol in lactucarium, but lactuicerin is found in the benzene extract (*Ann. d. Chem.* B/ Bd. 238, S. 220). Lactuicerin, he thinks, has the composition  $C_{28}H_{44}O_2$ . Hesse's formula, on the other hand, is  $C_{20}H_{32}O_2$ . Franchimont investigated lactucon, and found it the least active of the principles of lactucarium.

The medicinal value of lactucarium depends upon three other constituents. The first, lactucin, has a bitter taste and crystallizes in white pearly scales. It is soluble in alcohol. Of the remaining two, lactucic acid is a light yellow mass, and lactopierin, an amorphous bitter mass, are both soluble in alcohol.

Lactuicerin, which according to Hesse, consists of the acetates of two isomeric alcohols, is certainly one of the most physiologically active of the principles. It may be described as follows:

Potassium alcohol decomposes the two esters. It is soluble in chloroform, ether, and hot alcohol.

Fusing lactuicerin with potassium hydroxide, Kassner obtained a new compound—lactueol, of unsettled composition.

#### PHARMACOLOGY—Fronmüller has made the chief researches.

1. As a hypnotic lactucarium comes first; then the syrup, then Ludwig's lactucin, and last Merek's lactucin.

2. Lettuce juice takes the lowest place.

3. Lactucarium must be given in doses of 10-30 grains.

4. The narcotic action of lettuce juice is very mild.

5. Lactucin does not represent the hypnotic effect of lactucarium. Thus we know two things about lactucarium—(1) it must be given in large doses, and, (2) its narcotic effects are mild. According to the experiments of Szwarczoff and Sokolowski (*Studies of the Moscow Laboratory*, 1876, p. 267) lactucarium possesses more positive effects; it diminishes reflex excitability, voluntary movements and sensibility. This is a fair statement,

which supports the views of others, Wibener and Schroff. It is recorded by as careful a writer as Tischendorff that solutions of lactucarium injected into the thigh of dogs were fatal in three days. The toxic dose has not been determined, but, on the other hand, attempts to underestimate its effects are wholly unwarranted, since toxic symptoms have been recorded. The truth is that effects, pharmacological and clinical, depend on an effectual dose and effectual preparation, and not as one writer on therapeutics says, on the alcohol in the official preparations.

**THERAPEUTICS.**—Questions of experiments apart, though some, like Orfila's in which he killed dogs, are really convincing, and Wibmer's on himself in which he slept profoundly and had a headache, lactucarium is a useful agent that produces sleep and a sedative effect on cough. These two effects, if rightly summoned, indicate its medicinal power. They were noticed first by Caron (*Gaz. des hop.*, May 30, 1867). He was able to produce sleep in children, and went so far as to recommend lactucarium in place of opium. More recently, in 1915, similar effects were observed by Klotz, and with more authority of knowledge and number of instances. He failed, however, to see the striking affinity between lactucarium and ethyl carbamate. Göppert has suggested that ethyl carbamate would be most serviceable as a hypnotic in children excited and sleepless through bronchitis, pneumonia and influenza. In connection with this subject, we ought to note that the bronchial and nervous systems are much affected in consumption, and affected in ways that seem so alike. This syrup of lactucarium and ethyl carbamate allay cough and nervousness in youth. So too, it will be found that the cough and insomnia of phthisis in the case of young adults and older persons is far better treated in any routine course in this way. Hospitals, for example, afford the best examples of the routine treatment of phthisis. Opium, in some form, is usually the main ingredient, and often is most praiseworthy in patients who have no idiosyncrasy against it. But there are a great many persons who cannot tolerate it, women and children in particular, and for such, there should be something which combines the virtues of our botany and modern chemistry. In the case of syrup of lactucarium, what are the results?

According to the Paris physician, Sersirin, the syrup is given with success in all cases of over-excitement of the nervous system: for insomnia which so frequently accompanies convalescence after prolonged illness; for palpitations of the heart, not the result of myocarditis; for intestinal neuralgia; in short, whenever it is necessary to produce a sedative effect.

Another merit is of especial value—its efficacy in climates with sudden variations of temperature, when affections of the respiratory organs in the form of bronchitis and slight influenza rarely resist the use of this syrup for many days; convulsive and whooping coughs are invariably corrected.

Klink, in 1830, wrote a dissertation to prove much of this. He had the support and reasoned work of Gmelin, Orfila, Magendie. The analysis was actually performed by Ludwig (Archive de Pharmacie, 1847). Buchner (Pharm. Centralblatt, 1833, p. 27) states that the active principle is lactucin. Pereira makes the same observation, whether upon facts of his own or experiment, does not appear, but chemists of this day, Liebig and Poggendorf (Handb der Chemie, 1849, Bd. 14, p. 763), say that lactucin is the most active principle, whilst lactucon is inert.

In what doses may we expect any effect from syrup of lactucarium? According to Klink a drachm produced long sleep, without other effects. Bibra credits it with about the same strength. The older therapeutists consider a drachm sufficient. The most fully detailed table is that of Fronmüller. He administered lactucarium in 100 cases. In 30 cases the English drugs were used; doses 6 to 6½ grains. On the other hand he used French lactucarium in 8 cases; doses 8 to 20 grains. The German cases amounted to 56; doses ½ to 22 grains. The English drug gave 18 complete cases, 15 partial results, and 3 non-results. The German gave 26 complete results, 21 partial, and 9 non-results.

A very sensible summary of the effects of the syrup of lactucarium is given by Sir Lauder Brunton. "Lettuce has a somewhat soporific action, and the extract has been used for sleeplessness. Lactucarium is used instead of opium to *allay* cough, quiet nervousness, and induce sleep in cases where, from idiosyncrasy, opium is not borne."

**CLINICAL**—The above sentence constitutes the true indication for the use of lactucarium. But it is equally evident that there are many cases—cough, insomnia and tachycardia—in which the combination with ethyl carbamate is synergistic. Investigation and clinical cases have amply confirmed this. These clinical studies—this medical observation—were suggested by records at the Mt. Sinai Hospital. Some years ago, when attending the patients with phthisis a numerous class at this hospital, I was struck by the ill-effects of the morphine in the mixtures of the formulary, that is, by the iteration of these mixtures and a corresponding amount and frequency of morphine. The class of

Russian Jews who came in large numbers to the hospital complained of the effects of opium, which dried the sputum, increased the cough by the accumulation of the inspissated sputum, took away appetite and sleep. To these and other patients the syrup of lactucarium U.S.A., with an advantageous result. It had a sedative effect on the cough without drying the sputum, and induced sleep. The results wholly agree with those of Fronmüller and Rousseau. Ethyl carbamate was thought of as a synergist, and a series of observations were carried out. For the sake of brevity, the synergis may be set forth in the following table:

LACTUCARIUM.	ETHYL CARBAMATE.
Effects on the heart, none.	None.
On breathing centre, slightly stimulating and slowing.	Centre, slightly stimulating. Seven to 9 hours like sulphonal.
Brain, 7 to 9 hours like haschich.	

In other cases, not in hospitals, the syrup and ethyl carbamate possessed admirable effects on the bronchitis, influenza and phthisis. The cases in which it is most serviceable are marked by dyspnoea, sleeplessness, and nervousness. It is, above all, quick in its action. It can usually be repeated. By-effects are slight or wanting. Among many cases that are illustrative of these properties of the two drugs, the following case may be cited:

Case: F. G. A waiter, aged 34 years. The prodromes were slight, mal coryza and cough. In the course of ten days, an influenza set in with increased cough, depression, loss of appetite, abundant, purulent sputum. No tubercle bacilli, but microcococcus catarrhalis, coarse rales and temperature 101 F. This condition, with cough, nervousness, and depression, continued for a while. The treatment was a purgative, and the syrup of lactucarium and ethyl carbamate night and morning. The immediate effects were sleep and relief of the cough. It was taken with readiness. In fact the taste of this syrup was tested most carefully.

In a word, the cough diminished, sleep was obtained and was not disturbed. Recovery followed quickly, and most marked were the rapid convalescence and the sleep without after-effects. This occurred during an epidemic of influenza.

I must conclude by a short, though obvious, piece of criticism. Syrup of lactucarium and ethyl carbamate are not narcotics in the usual sense. They are both alcohols of the fatty group, pos-

sessing a group of nitrogen, or rather an amide group. The combination is to be preferred to opium, and is effectual in the right causes.

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17 West 43rd Street, New York.

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### CURRENT VIEWS REGARDING THE TONSILS AND THEIR SURGICAL REMOVAL

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(EDITORIAL—J. A. M. A.)

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Nowadays when any organ of the body attains a previously unsuspected importance so that considerable professional attention is concentrated on it, the circumstance is soon reflected in the interest and expectations of the layman. This is seen, for example, in the popular attitude toward the tonsils and adenoids. Few untutored persons have any conception as to the purpose, not to say the location and anatomic relations, of these lymphoid tissues. The physician may counsel the removal of one of the structures with a clear understanding that he is urging what is, in a sense, an experimental operation which may remove a possible cause of disease in other organs. The layman, encouraged by the apparent innocuousness of the operative procedure, soon begins to look on tonsillectomy as a sort of panacea for the most diverse ills; and somehow this state of mind occasionally seems to weigh in the balance with the professional man himself. That the uses of these lymphoid structures are so little understood is no reason for counting every prominent tonsil or adenoid in persons of school age as a defect. Indeed, there seems to be a wholesome reaction against the operations on tonsils in youth merely because they are prominent and noticeable. At the Johns Hopkins Hos-

pital, for example, the practice is to regard the tonsils and adenoids in children as physiologically important parts of the mechanism which protects the lower air passages from dust and organisms. If there are no mouth-breathing, no evidence of damage to the ears, no chronic enlargement of the glands of the neck, no cystic condition of the adenoids known as Thornwald's disease, and none of the so-called "reflex neuroses," the removal of adenoids regardless of their size or appearance is not recommended.

On the other hand, recent years have witnessed a growing interest in management of diseased tonsils and a widespread appreciation that the germ of tonsillitis may hit in many spots far removed from the local seat of obvious disorder. Tonsillar and nasopharyngeal infections have of late frequently become related, for example, to infectious and rheumatoid arthritis, myositis and acute rheumatic fever, to chorea, to hyperplasia of the cervical glands, and even to nephritis. If these relationships and other indications of the involvement of the tonsils as portals of entry for harmful micro-organisms could be convincingly established, the indications for the removal of the tonsils both as a prophylactic and as a therapeutic measure would become clearer and more rational. It is of unusual value, therefore, to have available a carefully digested study of the relation of tonsillar and nasopharyngeal infections to general systemic disorders, based on 1,000 cases in which operation was performed at the Johns Hopkins Hospital during the past five years. An added importance is lent by the fact that these operations were not done in a haphazard way in hurried dispensary service without experienced anesthetists or assistants; they were performed under the rigorous routine of a surgical ward, and the cases were followed up in order to learn the subsequent history with respect to disorders supposed to be secondary to a chronic focus of infection in the upper air passages.

As a result of the experience now collated, Dr. Crowe and his associates have reached certain tentative conclusions which may be helpful in the contemplation of tonsillectomy. They assert that the operation should never be undertaken during the acute stage of tonsillar inflammation, as a cerebral abscess may result. Diabetes is as much a contraindication for tonsillectomy as it may be for any operation necessitating general anesthesia. Tonsillectomy is rarely of benefit in the chronic deforming types of arthritis, in many cases probably doing more harm than good. The Baltimore surgeons are further convinced that nothing is to be gained from a tonsillectomy during the acute stage of chorea,

acute rheumatic fever or endocarditis. Their experience shows that even after the nose and throat have been put in normal condition by operative measures these diseases may recur. In any event the tonsils are not the only portals of entry for the etiologic organism, and their removal in an interval free from symptoms can be justified only on the plea of preventing further cardiac lesions which may result from subsequent acute tonsillitis. The frequency of heart and joint defects in chorea may justify such a prophylactic measure.

In infectious arthritis in which the periarticular changes predominate, and perhaps also in myalgia, the promise of helpfulness from tonsillectomy is greater. In the early stages of glomerulonephritis it may also be worthy of some consideration. The tonsils are the most common site of the chronic infections which give rise to a hyperplasia of the deep cervical lymph glands near the angle of the jaw. The enlargement of the glands will rarely subside after treatment of carious teeth and alveolar abscesses alone. It seems advisable, therefore, under such conditions to consider the removal of the tonsils in cases of persistent palpable glands at the angle of the jaw, particularly if the patient has some general systemic disorder. The majority of the enlargements are apparently due to a chronic pyogenic infection which will subside after tonsillectomy. The others are due, as a rule, to persistent tubercle bacilli.

Obviously the advisability of a tonsillectomy in any individual case depends on the malady and the general condition of the patient. As the Baltimore investigators express it, tonsillectomy alone will not cure tuberculous cervical adenitis, arthritis or glomerular nephritis. It is necessary in such cases to apply general hygienic measures as well, so as to increase the patient's resistance. If the tonsils are the primary focus of infection, their removal in suitable instances may materially alter the prognosis by preventing a constant reinfection. Skilful surgery is indispensable. A partial occlusion of the crypts, resulting from an incomplete tonsillectomy, as sometimes happens, may actually aggravate the symptoms of infection by producing a mechanically made focus of trouble. Despite the many uncertainties and unsolved problems which still exist, however, Crowe and his collaborators state that their records "tend to support the evidence of Billings and others in regard to the importance of focal infections in many of the general disorders seen by the internist, the pediatrician, and the general surgeon."

# Dominion Medical Monthly

And Ontario Medical Journal

EDITED BY

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Published on the 20th of each month for the succeeding month. Address  
all Communications and make all Cheques, Post Office Orders and Postal  
Notes payable to the Publisher, GEORGE ELLIOTT, 219 Spadina Road,  
Toronto, Canada.

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Vol. XLVIII.

TORONTO, MAY, 1917

No. 5

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## COMMENT FROM MONTH TO MONTH

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**John L. Davison** was one of nature's gentlemen. He held in a great measure the confidence, respect and esteem of his fellow practitioners. Many medical men in Toronto have repeatedly stated they never heard any one say a bad word about "John L." and it was equally true that no one ever heard him say a bad word about any brother practitioner. He seemed to possess the happy faculty of making many friends without courting popularity; for it was no part of his natural vocation in life to be other than what he always was, a refined, courteous gentleman. We have heard much of uncrowned kings, princes of good fellows, plumed knights, and, judging from physical and mental endowments, any of these appellations might well be applied to our departed confrere, but Dr. Davison would have waved aside any semblance of such admiration. His was a life, however, whose influence was altogether too soon detached from the environmental life of the medical student. It is such characters as his, such individual style as his, which imprints its stamp upon student life—a standard to go by—an ideal to be attained.

**Organization**, written in seven-league capitals, for the medical matters of the Dominion of Canada, stares the profession and the people in the face. No longer should the care of the returned soldier be a "side show" of any department of the Government. True, in the past, the medical matters of the Dominion Government have been mere "side shows" of some six to eight departments. Abortive efforts have from time to time been made to have these consolidated into one department under a responsible minister of the Crown; but the departmental heads were loath to part with the patronage involved, and so stood in the way of a reform which, had it been put into operation, as was promised, a few years ago, would to-day have been handling all medical matters pertaining to the returned wounded soldiers direct from a Ministry of Health.

The people of any community are now well seized of the benefits derived from an active, progressive, and well-organized department of health. No city in any province would dare to carry on work without such a department. A provincial government without a consolidated department of health under a responsible minister would soon pass out of office. How comes it then that the National Government of the Dominion of Canada wobbles along in its medical affairs thus leading to friction, unnecessary expense, and waste of energy? Is it not high time the federal authorities went out of the "side show" business for medical matters, and brought all the various medical departments of the administration under one responsible minister of the Crown?

What *is* the matter with medical affairs in the militia? Reports are authorized to be made; reports are published. Investigations are authorized to be made; investigations are published. Courts of inquiry are authorized; courts of inquiry are held and reports of their proceedings published in the newspaper press. But the people get no nearer the truth; there is an undercurrent of dissatisfaction.

The people do not understand officers donning khaki for a time, either in the medical service or some other service, and then returning to civilian life. They do not understand how it is

trained officers are passed over; that promotion is not according to seniority; that medical men have taken examinations and have never even heard whether they had passed or had been qualified for service.

An evening paper in Toronto has been making inquiries of returned soldiers. That is quite right. Follow it up! Go from the lower rung of the ladder to the topmost round! If the Gordian knot cannot be untied, then it should be cut. Cut out the multiplicity of authority, eliminate the friction, stop the overlapping and the wastage of energy by consolidating all under a Federal Department of Health. The three outstanding federal administrative matters to-day are agricultural production, the care of the returned soldier, and finance. One of the trio is not represented properly in the ministry. There are departments for minor matters. Is the health and welfare of the returned wounded soldier for months, perhaps years, to come—the health and welfare of the people of Canada for years to come—to be a mere series of "side shows" in the national life of Canada?

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### HOW DO YOU TREAT ECZEMA IN CHILDREN?

(*N.Y.M.J.*)

Dr. William Martin, of Atlantic City, writes:

It is recognized that children who are the victims of this disease are suffering from some disturbance of metabolism, which expresses itself locally. In order to overcome eczema, it is necessary to recognize this fact and seek the cause, and by its removal, aid materially in restoring the skin to normal.

Anemia and gastrointestinal disorders are largely responsible for the local manifestations, therefore care in these directions is necessary. Better blood may be secured by various methods, perhaps the best of which is the proper diet. Errors of digestion may be cured by the same means, in large measure. Actual disease of the digestive organs will require special attention. Fortunately eczema is not the constant attendant of these diseases, but more often the result of improper diet or improperly prepared foods. The infant is best off when breast fed, but when this is

impossible, the suitable artificial food can be found by careful testing, and this alone will at times relieve the skin condition. Keeping the bowels well open, not by drugs, but by laxative foods, will be a factor in this line.

Older children with eczema should have their diet restricted to the plain type. It is essential that there be variety, but the quantity should be guarded, and meats largely eliminated. Excessive amounts of sweets are also tabooed. Fruit juices, vegetables, bread and butter, milk and milk foods, should be in preponderance.

In infants with eczema of the buttocks, the fault will frequently be found in the lack of proper care of the diaper, by which the child is allowed to remain wet or unwashed too long. Care in these regards is essential in the relief of eczema as well as in its prevention. Local lotions for their soothing qualities may be needed for a time until the measures pursued bring the result, but water for bathing is as a rule not desirable, as it acts as an irritant. Olive oil or plain rose water ointment for cleansing purposes will obviate this. For the actual cure of these local conditions, we have in physical measures the very best method.

Eczematous patches show skin infiltrations with sluggish circulation, therefore the first object sought is the restoration of the skin circulation, and the resolution of the infiltrations. Hyperemia in these conditions is best produced by the use of the high candle power lamp of proper construction. The range of heat may be from fifty to five hundred candle power, and the parabolic hood should be so constructed that the rays are projected in parallel, and not in focus. The lamp should be hung so that it can be swung over the area to be treated, obviating a too intense heat over any one part at one time. The height of the lamp above the part may vary according to the effect, and the irradiation should be carried to the point of active hyperemia.

This treatment should be followed by the use of the "blue pencil" effluvia, so called because of the color of the discharge, and the shape of the electrode. To give this treatment, the patient must be seated upon an insulated platform. If the child is too young to be placed alone, it may be held by the nurse. The positive end of the static machine is grounded, and the negative end is connected by a crook, which the patient holds, or in the case of a very young child, the nurse holds. The pencil electrode is held by the operator, and is attached to a second ground chain connected with a water or gas pipe. The two balls of the sliding rods are widely separated, and the machine run at moderate

speed, sufficient to give a good effleuve, this being played over the eczematous patches for a period varying from ten to fifteen minutes, according to the needs. This spray from the electrode gives the feeling of a cool breeze, and is not unpleasant or painful, and children soon become soothed under it. Its first effect is a blanching of the part, which is soon followed by an activity of the local circulation.

What part the effleuve plays in an antiseptic manner, is a matter of conjecture, as both ozone and nitrous oxide gas are generated. We do know that the effect of the effleuve upon the tissues outside of the rubefacience, is the relief of local stasis and the softening of the infiltrated tissues underneath the skin, thus restoring local circulation and activating metabolism.

Some operators may prefer the brush discharge. This is given in the same way, but by using a wooden stick, moistened, in place of the pencil electrode. The effleuve from this is much more of a spluttering type, and gives the sensation of hot sand thrown against the part. The effect is more rapid, but it is not so well borne by children, therefore not as advisable.

For the digestive faults, aside from the correction of the diet, we may use with benefit the static wave current, applied by a metal plate. This is placed over the abdomen, attached to the positive end of the machine, the negative grounded, and the machine started with the poles together. These are separated slowly until there are good slow contractions, which are synchronous with the discharge of the current across the spark gap. This acts mechanically, activating all of the organs of digestion, increasing the secretions, as well as all the normal functioning of the organs.

Perhaps the one end attained by these physical measures is the saving of drugging the child, a matter of no little importance. Aside from this, their effects are purely physiological, and therefore are of the best.

## Reviews

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*Glaucoma. A Handbook for the General Practitioner.* By ROBERT HENRY ELLIOT, M.D., B.S., etc. Price, 3s. 6d. London: H. K. Lewis Co., Ltd.

This monograph is said to be a book for the general practitioner, but many hold that the "busy medical practitioner" should do very little of eye work—the eye is too valuable an organ—but refer the case at once to the oculist. Its chief value then to the "B.M.P." would be to enable him to make a prompt diagnosis. Otherwise, it is likely to be of more decided value to the specialist.

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*Cataract—Senile, Traumatic, and Congenital.* By W. A. FISHER, M.D., Professor of Ophthalmology, Chicago Eye, Ear, Nose and Throat College, Chicago—By the above College, 1917.

As this monograph is largely operative, it is a book for the specialist, and will be of interest to those interested in the ophthalmic branch of surgery.

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*The Surgical Clinics of Chicago.* Volume 1, Number 1 (February, 1917). Octavo of 221 pages, 83 illustrations. Philadelphia and London: W. B. Saunders Company, 1917. Published bi-monthly. Price per year: Paper, \$10; Cloth, \$14. W. B. Saunders Company, Philadelphia and London.

This is the first number of the *Surgical Clinics of Chicago*, an entirely new publication which the Saunders Company have just placed on the market. This new work will cover not only General Surgery, but all the specialties as well, Gynecology, Genito-Urinary work and Eye, Ear, Nose and Throat Diseases, etc. It will record the Clinics of some 40 leading specialists of Chicago, giving particular attention to diagnosis and treatment.

We believe this new publication will be of particular interest to our readers.

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## News Items

Lieutenant-Colonel Alexander Primrose, Toronto, has sailed for England.

Major John A. Amyot, Toronto, has been promoted to the rank of Lieut.-Colonel.

Dr. Thomas Jean Bourque, Richibucto, N.B., has been appointed a member of the Canadian Senate.

Major W. Harley Smith, who was with the Ontario Military Hospital at Orpington, has been ordered to France.

The death is announced of Dr. Hewetson, Pineher Creek, Alberta, on active service; also Dr. Robert Home, Toronto.

Captain R. M. Shaw, C.A.M.C., Sault Ste Marie, Ont., is reported wounded; also Captain N. K. McIvor, of Winnipeg.

It is announced that Dr. George E. Armstrong, Montreal, who was in England as consulting surgeon to the C.E.F., has resigned.

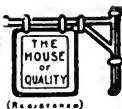
Dr. Arthur G. Price, has been appointed Medical Officer of Health in Victoria, B.C., in succession to Dr. G. A. B. Hall, who is overseas.

Dr. Jules Albert Galliot, Notre Dame des Lourdes, Man., serving in the French Army Medical Corps, has been awarded the Cross of the Legion of Honour.

General John Taylor Fotheringham, C.M.G., Toronto, has been home for a few days before assuming his duties at Ottawa as Director of Invalides for Canada.

Colonel Lorne Drum, Ottawa, has been appointed assistant medical director of the Fifth Canadian Division; and Major C. A. Young, D.D.M.S., of the Fifth Division.

Lieut.-Colonel Walter McKeown, M.D. (Toronto), who was on the Pension Board in England for nearly two years, has been assigned to surgical duty at the Kitchener Hospital, Brighton, England.



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The names of Lieut.-Colonels, Irving H. Cameron, Graham Chambers, and D. W. McPherson, Toronto; F. G. Finley, Montreal, have been brought to the attention of the Secretary of State, England.

Major E. Stanley Ryerson, Toronto, who was with the University of Toronto Military Base Hospital at Saloniki, has been appointed successor to Colonel Frederick W. Marlow, formerly A. D. M. S., Toronto.

Dr. John N. E. Brown, formerly superintendent of the Toronto General Hospital, and for five years occupying a similar position in the Ford Hospital, Detroit, Mich., resigned some weeks ago, and is now in Toronto.

Dr. Arthur Winters, formerly in practice on north Yonge Street, Toronto, and who was in England doing graduate work when war broke out, is now A.D.M.S. Quebec Military District, with the rank of Lieut.-Colonel.

The Women's Medical Association of New York City is planning a banquet to be held at the Hotel McAlpin on Wednesday evening, June 6, 1917, for the women physicians who will be in New York City to attend the meetings of the American Medical Association. Tickets, three dollars, may be obtained from Dr. Mathilda K. Wallin, 616 Madison Ave., New York City.

The death is announced of Dr. Simon J. Tunstall, Vancouver, at the age of 64 years. Dr. Tunstall was President of the Canadian Medical Association in 1904, when that body met in Vancouver. He was for many years a prominent member of that Association, always taking a keen interest in its advancement, as he did in all matters pertaining to Canadians. He had also been President of the College of Physicians and Surgeons of British Columbia, and a director of the Vancouver General Hospital.

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## Publisher's Department

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THE AFTER CARE OF CHILDREN'S ILLS.—With the advent of school days, and the daily association of many children in the class room, the contagious diseases of childhood develop and multiply. The exanthemata, as well as diphtheria, whooping cough, etc., comprise a considerable proportion of the diseases that the family physician is called upon to treat during the late Fall and Winter months. The robust child, with but a mild infection, frequently recovers quickly and, perhaps, requires but little attention during the convalescent period, while the child whose general nutrition is "below par," usually emerges from the acute attack with a condition of Anæmia and general vital depreciation. In the large majority of cases, it is undoubtedly wise to encourage and hasten convalescence by means of a palatable and efficient hematinic and general tonic. For this purpose Pepto-Mangan (Gude) is especially valuable. All children like it and take it readily; it does not irritate the digestive organs, but, to the contrary, increases the appetite and assists in the absorption and assimilation of the child's nourishment. As it is non-astringent, it does not, as other ferruginous remedies do, cause or increase constipation. As Pepto-Mangan is prompt and efficient as a blood builder and general reconstructive, it should be preferred among children whenever medication of a general tonic nature is indicated.

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GUDE'S PEPTO-MANGAN.—New York, February 27th, 1917.—  
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# Dominion Medical Monthly

And Ontario Medical Journal

Vol. XLVIII.

TORONTO, JUNE, 1917

No. 6

## Original Articles

### BLOOD-PRESSURE FROM THE LIFE INSURANCE STANDPOINT

By R. MAX GOEPP, M.D., PHILADELPHIA, PA.

Professor of Clinical Medicine, Philadelphia Polyclinic; Assistant Professor of Clinical Medicine, Jefferson Medical College.

It is now about ten years since blood-pressure observations were begun as a routine procedure in the examination of life insurance risks and, with very few exceptions, the test is now required by all the leading companies, if not in all cases, at least when the amount of insurance applied for reaches a certain figure, varying from five to twenty-five thousand dollars, or the applicant is over 40 years of age.

As far as I know, the first company to employ the test was the Northwestern Mutual Life Insurance Company, in August, 1907. Dr. J. W. Fisher, medical director of the company, to whom we are indebted for the most complete statistical information so far published on the value of the test in the selection of risks, states that before the introduction of the sphygmomanometer "only a fraction of 1 per cent. of applicants were refused insurance on account of high arterial tension alone, while in 1915 about 6½ per cent. of all cases rejected were found to have a high arterial tension, and in considerably more than half of those with a high blood-pressure the examiner discovered no impairment which would account for the high arterial tension." It is a well-known fact that many individuals present constantly an abnormally high blood-pressure without showing any symptoms or pathologic changes to account for it, at least none that are discoverable by our present means of diagnosis, and yet the marked effect on life expectation of even moderately high blood-pressure is so convincingly shown by Fisher's statistics as to leave no doubt that, unless the condition which is responsible for the high pressure is removed, life will be shortened in a large proportion of the cases.

I shall first give a summary of Fisher's statistics bearing on the prognostic value of the blood-pressure test, published in 1915, which include both accepted and rejected risks between the ages

of 16 and 60. It should be stated that the mortality percentage is based on the Medico-Actuarial Table, which is derived from the actual combined experience of forty-three leading companies in the United States and Canada, of persons insured during the years 1885-1909, not including substandard risks. One hundred represents the average expected death-rate, although the actual death-rate generally falls considerably below that figure. In the case of the Northwestern, from which these statistics were collected, the actual death-rate during this period was slightly less than 80.

The points of interest brought out by these statistics are:

In a series of 2,635 accepted risks between the ages of 40 to 60, with an average systolic pressure of 142.43 mm. Hg and no other impairment, the mortality was 93.16, or 16.48 per cent. above the normal.

The next group, comprising 521 accepted cases, with an average systolic pressure of 152.58 mm. Hg and other factors the same, yields a mortality of 126.69, or 47 per cent. above the average mortality.

In 302 cases rejected on account of high pressure, having an average of 170 mm. Hg, the mortality was 250.41, or more than three times the average mortality. These cases also showed no other impairment.

In other words, a systolic blood-pressure of over 140 mm. Hg, without other impairment, seriously affects the mortality; while applicants presenting a pressure in excess of 150 mm. Hg yield a mortality almost 50 per cent. above the general average.

It is worth noting that in the case of the rejected risks over 75 per cent. of the impairments found at the examination or discovered later were cardiovascular.

Individuals under 40 years of age with excessive blood-pressure show even a higher mortality, as is to be expected. Thus in a series of 495 rejected applicants between the ages of 16 and 40, having an average blood-pressure of 149.50 mm. Hg, the mortality was 142.61, or 78 per cent. above the average.

The effect on the mortality of increasing systolic pressure is strikingly shown in one of Fisher's tables:

10-14 mm. over average for age	114.06 per cent.
15-24	180.94
25-34	205.52
35-44	246.63
45-59	253.93
60 mm. and over	450.02

On the other hand, individuals with a blood-pressure lower than normal show a favorable mortality. A group of 627, ages 40

to 60, with systolic blood-pressure ranging from less than 105 to 110 mm. Hg, gave a mortality of only 56. Two hundred of these had a systolic pressure of 105 or lower, and 427 a pressure of 106 to 110. (If tuberculosis is definitely eliminated, a low systolic blood-pressure does not appear to affect the mortality unfavorably.)

I quote Fisher's conclusions:

"1. That a persistently high arterial tension will result in an excessive mortality, and the higher the arterial tension the greater the mortality.

"2. That a persistent systolic blood-pressure of about 12 mm. above the average for the age would seem to indicate the limit of normal excess variation in man.

"3. That an apparently healthy person may have high arterial tension extending over a considerable portion of time without discoverable impairment to account for it.

"4. That of the medical impairments found together with high arterial tension, both below and above the age of 40, more than 75 per cent. are cardiovascular.

"5. That while the normal average blood-pressure increases with age so far as investigated (*i.e.* 60 or 65), materially higher arterial tension is not necessarily to be expected at older ages.

"6. That persons with a systolic pressure between 90 and 110 mm. Hg show a more favorable mortality than persons with a pressure 12 mm. above the average pressure for the age.

"7. That in persons whose weight is 20 per cent. or more in excess of the average for height and age, blood-pressure averages above 4 mm. higher than in those of normal weight."

*Normal Blood-Pressure.*—Various tables and formulas have been suggested, of which the following may be given as representative:

Faught suggests that the normal average systolic pressure for a male at the age of 20 be considered 120 mm. and that for every additional two years of life one millimetre be added. Taking the figures thus obtained, a variation of 17 mm. above and below the average may be regarded as permissible.

Fisher gives the following table of average systolic pressures for the different age periods and allows a variation of about 12 mm. in each direction:

Age periods.	Average	Age periods.	Average
15-19	120	45-49	130
20-24	122	50-54	132
25-29	123	55-59	134
30-34	124	60-64	135
35-39	126	65 and over	136
40-44	128		

Rogers gives practically the same figures as Fisher and allows a variation of about 12 per cent. above and below the average, which is equivalent to from 14 to 16 mm. Hg. His table is as follows:

Age.	Average.
20	120
30	123
40	126
50	130
60	134

It will be noted that there is but little difference between these tables. For the higher ages Faught's method seems to me to give the most satisfactory readings.

In women, it is generally accepted, the systolic pressure is approximately 10 mm. lower than in men of the same age.

An important omission in the statistics quoted above is that no account is taken of the diastolic and the pulse pressures, which we now regard as essential, if not the most important parts of a blood-pressure observation. As a matter of fact, the insurance companies are only just beginning to require or even request diastolic readings, and are sending out to their examiners information in regard to blood-pressure in general, and especially instructions how to take the blood-pressure by the auscultatory method, in order to obtain the diastolic, as well as the systolic reading. I have here three such circular letters which have been kindly sent to me by their authors, Dr. William H. Wehner of the Fidelity Mutual, Dr. Charles H. Willits of the Provident, and Dr. Oscar H. Rogers of the New York Life. These letters were received in reply to a questionnaire sent to thirty of the leading companies for the purpose of ascertaining the present status of the blood-pressure test in life insurance examinations. In all 21 answers were received. The questions were as follows:

Q. 1. Does your company employ the test in all examinations?

Eight companies require the test in all cases; one does not require it, but prefers to have it used and "gets it in 90 per cent. of its business." Eleven companies require it for applicants above a certain age and for large amounts. One company does not use the test at all in connection with life insurance examinations.

Q. 2. If not in all cases, under what conditions is it required?

The conditions under which the test is required by the various companies are nearly the same. The age limit is 40, and in one case 35. The amount of insurance varies from \$5,000 to \$25,000. One company requires the test only when there are "special or

suspicious features in the case"; another only in examinations made by the referee and his assistants.

Q. 3. Do you require diastolic readings?

The diastolic pressure is required by 13 companies; not required nor asked for by 3, and requested by 4. One director says: "We are trying to educate our examiners to that end." Another: "When we are convinced we can obtain it correctly," and adds a foot-note, "The diastolic and pulse pressure are the important factors in these observations. The fluctuations of the systolic pressure is very large and so often due to purely temporary conditions that I am not ready to formulate any rules."

Q. 4. What, if any, are your maximum and minimum limits for (a) systolic pressure; (b) diastolic pressure; (c) pulse pressure, in millimetres, in per cent. of systolic pressure?

With few exceptions the answers give as the safe maximum systolic pressure 150 mm. (14); two companies have 160 mm.; one 145 mm.; one goes by Fisher's table; and two have no fixed limit. The lower limit of safety ranges from 100 to 110 mm. Ten directors give a maximum for the diastolic pressure, and here the answers show considerable variety: 3 give 115; 2, 110; 2, 105; 2, 100, and 1, 80 (70-80). Four companies give the minimum diastolic pressure as 60, and one 65. Only one director gives the pulse pressure in terms of systolic pressure "approximately 33 1-3 per cent."

This want of agreement on the maximum permissible diastolic pressure seems to show that the medical departments are testing out the value of diastolic readings and accumulating statistics on which to base a definite formula later on. The important point is not the precise figure of diastolic pressure, but the relation of pulse pressure to systolic pressure.

Q. 5. Do you use the suggested formula: "120 mm. for a man 20 years of age, adding 1 mm. for every two additional years of life," with a permissible variation of 17 points in each direction?

Six companies use Faught's formula; one of them with the slight modification of allowing 15 mm. instead of 17 mm. variation. Three use Rogers' table; one, Fisher's; and ten have no definite standard.

Q. 6. What allowance, if any, do you make for overweight?

Two companies only make allowance for overweight. The general feeling is that, overweight being in itself an impairment, applicants weighing more than the permissible maximum for their height and age should be judged more strictly than those free from that impairment.

Q. 7. What allowance, if any, do you make for (a) nervous excitement; (b) fatigue; (c) time of day?

The answers to this question are practically identical. If there is reason to think that the reading obtained is influenced by some temporary factor, additional observations are required. None of the companies insists on the test being made at a certain time of day, but some request it in special cases when a second observation is called for. It is here that diastolic readings are of value, as the diastolic pressure is less subject to variation from temporary influences.

Q. 8. What type of instrument do you recommend, mercurial or aneroid? or insist upon?

In regard to instruments, eight companies express no preference for either type; six prefer or recommend the aneroid; four the mercurial type; one recommends both kinds; and one director does not answer the question. None insists on any special instrument being used, but several mention that the armlet or cuff should be at least 5 in. wide, and refer to the importance of comparing aneroid instruments with a standard mercurial manometer from time to time.

Q. 9. Do you insist upon the auscultatory method being employed?

Six directors insist on the auscultatory method being employed; one fails to answer the question; the rest request that it be used, but do not insist upon it.

Little or nothing has been added to our knowledge in regard to the value of the blood-pressure test in life insurance work since the publication of Fisher's statistics; but now that the companies have taken up the study of the diastolic pressure we may look for some interesting reports in the next few years. For the life insurance examiner, even more than for the clinician, the diastolic pressure is the more useful observation, as it is the more constant and influenced to a lesser degree by temporary and unimportant factors like emotional excitement, fatigue, the proximity of a meal, and time of day. It is to be hoped that we shall begin to think in terms of diastolic, as well as systolic pressure, and constantly bear in mind the normal relation between the two. The numbers 1, 2, 3 represent the values of pulse, diastolic, and systolic pressures in a normal individual, and any considerable departure from this formula casts a doubt on the risk. It should be distinctly understood, however, that the formula applies only to *normal* cases, for it is a matter of clinical experience that individuals with high tension, from whatever cause, habitually show a pulse pressure in excess of the normal, say from 40 to 45 per cent., instead of one-

third. If, therefore, an individual with a high systolic pressure is to be considered at all as a possible risk, he must at least show a pulse pressure slightly above the usual or normal.

In conclusion, I wish to emphasize once more that in the selection of life insurance risks the relation between the three factors in a blood-pressure observation is a more useful guide than a fixed standard for any one of them.—*Medical Record*.

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## A PROGRAMME OF PUBLIC HEALTH FOR CITIES\*

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By W. C. RUCKER,  
Assistant Surgeon-General, United States Public Health Service.

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Considered in its broadest sense, the ultimate reason for cities is public health. Every other reason for which mankind collects itself into more or less permanent aggregations is subsidiary to the basic idea of community protection and betterment of every sort. This protection is external, against the outside world, and internal, each individual against the entire collection of individuals. Since every action which produces a betterment of the conditions under which the community lives and works gives a definite reaction in increased health, it is at once seen that a public health programme for cities is in reality nothing more nor less than a complete plan for communal existence.

The collection of individuals into communities without the direct interposition of health protective measures is possible up to the biological limit of individuals per acre. The moment that concentration is increased beyond this point there is increased opportunity for promiscuity with a coincident intercommunication of disease and reduction of the acreage ratio below the biological limit. Therefore, in order that man may dwell in a concentration greater than the biological limit, it is necessary that artificial safeguards be thrown about him.

These safeguards take the form of those general community measures which must be exercised by the entire machinery of city government and those special measures which are exercised by health departments. Of the two, those exercised by the community machinery as a whole are of far greater importance. Health departments, for the most part, operate in end results.

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\*U. S. Public Health Reports.

Under the present system, disease must appear before it can be attacked, the municipal policy being one of eradication rather than prevention. This is to be expected in cities which maintain fire departments for the purpose of extinguishing fires rather than to prevent them, and under this system it would be more logical to call the health department the disease department. Until there is a basic change, health departments can do little more than scratch the surface of disease prevention because their authority deals with the actualities rather than with the potentialities of disease.

The entire community machinery by co-operation, on the other hand, possesses power to strike health hazards at their very root, to throttle at their inception those elements of municipal life which are the great producers of sickness, misery, inefficiency, and premature death. Furthermore, it is possible in this way to create and follow out a definite community policy of which health shall be a basic part. Heretofore the protection of health has been considered a function residing wholly in the health department as though health did not as vitally concern the other departments of the city government. The public health programme of the future embraces the co-ordination of the entire municipal machinery and the co-operation of the whole community.

Unfortunately health has been considered in the past solely as a medical problem and the pendulum has been enthusiastically swung so far that health is almost regarded as an artificial state to be achieved and maintained solely through the interposition of medical safeguards. With entire consistence the health wardenship of cities has been committed solely to physicians, those who by training have been taught to consider the pathological in human life, the symptomatology and evidences of disease rather than the great basic, underlying, essential factors which enter into and are the vital part in the creation, spread, and perpetuation of sickness. Expert knowledge of disease is absolutely necessary for the work of health departments, but cannot be the foundation of a broad municipal health policy. Public health is something more than a mere absence of disease. It is the physiological functioning of the community.

From the foregoing it may be deduced that the first and most important thing in a public health programme for cities is a definite municipal public health policy which shall embrace every department of the city government. In order that such plan may be put into operation it is necessary that there be a central focus which shall receive impulses from all of the departments and radiate them to the points where they will react with

the greatest benefit to the public health. This is in effect the creation of a public health centre in the city's brain. If we are to expect active interdepartmental co-operation it is necessary that all of the departments shall be in close touch and that there shall be a medium whereby they can communicate. More than this, if we are to expect the mass of the citizenship to join in this co-operation, there must be some means whereby this shall be achieved.

The keyword in this public health policy is co-operation, co-operation having as its basis the full recognition of the fact that in its last analysis the health problem is an economic problem and as such cannot be solved without careful consideration of the economies of the community. There has been a great deal said about the purchasability of health. This pleasing catchword has generally been interpreted as meaning that if the general public would give sufficient funds to the health department it would receive health in exchange. Used in this way the phrase is incorrect, because physical health can no more be purchased than spiritual health, and in both co-operation is a prerequisite to salvation. If we consider that health is purchasable by the full-pay envelope whose contents are outlaid for proper food, clothing, housing, and all that goes with them, then indeed is public health purchasable, but this requires the co-operation of the city and its citizens, the aim of this co-operation being the prevention of the shrinkage in the purchasing power of the contents of the pay envelope.

The heart of the programme lies in the central co-operating focus. The details of the programme will adjust themselves without friction if this point be well determined. This comprehends both the office and the man. The office must be removed from politics; its compensation should be sufficient to render its holder above influence; its tenure should be indefinite; it should have both executive and advisory functions, its advisory functions touching every part of the judicial, legislative, and executive functions of the city government. In this way the courts, in making decisions and fixing precedents having a bearing upon health, can and should receive expert advice. No legislation should be enacted by the city council without the advice of its health co-ordinating focus. To it the executive branches of the city government should refer all matters and plans of policy in order that all may be integrated for health. The direct and indirect authority vested in this office is great and far-reaching.

The man to fill this office must be many-sided, and he must be able to view health with a broad-angle vision, realizing that

his duties are not only to keep an entire municipality from being sick, but, what is of infinitely greater importance, to keep the body politic in such a condition that its functionation is at the highest degree of physiological efficiency. He must be able to visualize the fact that the least common denominator of health is the purchasing power of a day's labor. His type of mind should be that which characterizes the presidents of the great universities, a combination of catholicity of mental development with creative imagination.

This officer should be the health commissioner; the central co-operating focus should be the health department. Not the health commissioner as we know him now; not the health department as it exists to-day, but a health department enlarged and expanded in power to such an extent that it can and should be able to reach out and touch the every activity of the city government and harmonize the whole for the increase of health. Health departments nowadays err in one of two directions: Either they undertake to absorb and control executive functions which are not properly theirs—for example, plumbing inspection, garbage destruction, and the like—or they try to limit their activities to such a narrow field that they confine their radius of action to the actualities of disease. The president of a great university does not and should not undertake the teaching of the technicalities of Greek, but he should be able to mold it into the curriculum so as to create healthy-minded education. In the same way, the health commissioner need not and should not be responsible for the operation of water-filtration plants, but he should be able to assemble them into the city's health machinery.

Since concentration is inversely as the transportation facilities, the health department should be the first to be consulted in any plans for the increase of rapid transit. All of the problems connected with streets, with housing, industrial conditions, playgrounds, parks, schools, all of these bear an intimate relation to health, and as such should come within the purview of the health commissioner. The police, now almost solely occupied in the prevention of crime and the maintenance of peace, should be a powerful agency for health. In fact, there is no branch of the city government which cannot and should not be co-ordinated into the health programme.

In a fifteen-minute paper it is impossible even to mention the multiplicity of details which must enter into the carrying out of a public health programme for cities. More than this, it is not desirable, even if time sufficed. The extent to which the influence of a given agency shall reach is directly dependent upon

the mental calibre of its directing head; in other words, upon the fundamental idea from which springs the entire train of thought and all the ramifications thereof. The essential element in a public health programme for cities is a definite public health policy which shall bring the health agency into close touch with every activity of communal existence; not a policy which endeavors alone to prevent those diseases which are caused by vegetable and animal parasites, but one which aims at the control of that greater body of destructive agencies, human parasites. Not a policy which tries to control the insanitary tenement yet leaves out of consideration the cupidity which fixes its rent, but a public health policy which shall embrace the entire political economy of disease, a policy which shall be as broad and far-reaching as human nature, since, after all, human nature is the groundwork from which arises the fabric of the public health.

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### FRACTURE DONT'S \*

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By FRANK T. FORT, M.D., LOUISVILLE, KY.

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A rather careful scrutiny of available surgical literature fails to reveal a single recent contribution to the subject of "Fracture Don'ts." The importance of this subject was brought forcibly to my mind several years ago, while assistant in the clinics of the late John B. Murphy, where we had the opportunity of seeing many unfavorable results of improperly treated and neglected fractures, such as ischemic myositis, deformities and resulting necrosis from impacted fractures, almost functionless arms and legs from fractures near the neck of the humerus, from Colles' fracture, Pott's fracture, angulation of the femur and tibia from faulty adjustment, etc., all of which could probably have been prevented by the application of proper treatment at the time of injury, plus the co-operation of the patient who is often at fault.

The two most important underlying principles in the treatment of fractures may be stated as: (1) Correction of the deformity by proper reduction of the fragments; (2) Retention of the broken bones in correct anatomic position by suitable dressing or apparatus until union has occurred. There are three essential factors in the successful treatment of fractures: (a) mechani-

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\*American Journal of Surgery.

cal ingenuity, (b) anatomic knowledge, and (c) conservatism fortified by experience.

I believe we should treat all injuries, where fracture is suspected, as a fracture, until the X-ray examination or the development of symptoms warrant the exclusion of fracture. It is my opinion, however, that the more conservative the surgeon is, the better will be his results; the operative work should be left for those who from experience and special adaptability are better qualified to secure favorable ultimate results—I mean by this such procedure as bone plating, bone inlay, the use of nails, screws, etc.

Don't forget to dress a compound fracture in such manner that drainage can be instituted at any time, should the symptoms indicate or demand it.

Don't forget that the ability to correctly apply plaster of Paris dressings in the treatment of fractures must be acquired by every surgeon; it is not as easy and simple as one might think, it can only be learned by experience, the main objects being to secure fixation and rest without undue pressure.

Don't forget that a general anesthetic will cause muscular relaxation and facilitate the reduction of fracture in many instances where, without its use, reduction seemed impossible.

Don't attempt to apply any one kind of splint in a given fracture. Devise the kind of splint suitable for the individual case.

Don't forget to arrange all the fractured bones in their natural plane, with as much "muscle pull" removed as possible near the fracture site.

Don't forget that crepitus may be absent in: (a) riding of the fragments, (b) impaction of the fragments, (c) entire separation of the fragments, and (d) when muscle or blood clot is interposed between the fragments.

Don't forget that there is a pseudo-crepitus (very like true crepitus) in teno-synovitis, joint effusion, osteo-arthritis, and caries of joint surfaces.

Don't forget that in epiphyseal fracture the prognosis must be guarded, because such injuries in the young are sometimes followed by suspended growth or premature ossification followed by deformity.

Don't forget that in separation of the epiphysis (upper extremity of humerus and lower extremity of femur), the line of fracture is so broad that there may be no shortening, but the fragments may project.

Don't forget to at once examine the pulse at the wrist and ankle in fractures of the humerus and femur, to ascertain if an artery has been injured.

Don't allow a splint to press upon the skin sufficiently to produce ulceration or edema—or what is worse—gangrene.

Don't place a pad in the axilla or bandage the arm too tightly to the chest in fracture of the aeromion, because the head of the humerus is thrown outward and may thus separate the fragments—the head of the humerus is a natural splint in such fractures.

Don't forget to examine the shoulder joint in all fractures of the upper portion of the humerus, to ascertain whether the head is dislocated.

Don't begin passive motion too soon in fracture involving a joint, for it is likely to increase the formation of callus, and thereby limit future usefulness of the joint; it is better to nail the fragments together and place the joint at complete rest.

Don't splint the palm of the hand in Colles' fracture; leave the fingers free so they may be "worked" after the second or third day, otherwise the tendons may become adherent where they cross the site of fracture and considerable time may be required to restore suppleness.

Don't make the diagnosis of "only a contused hip" in elderly people, without a careful and gentle examination (including the X-ray) to exclude impacted fracture.

Don't forget that rarely disintegration and absorption of the head and neck of the femur may occur in elderly persons as the result of chronic osteo-arthritis, which may simulate fracture in the shortening, eversion and osteophytic crepitus which are often-times present.

Don't use violence in attempting to elicit crepitus in hip fracture, as much damage may be inflicted by separating the impaction.

Don't keep elderly patients in bed trying to secure union in hip fractures; they are almost sure to develop pulmonary edema, pneumonia, sloughing from pressure of splints, or from bed sores, and nearly all of them die.

Don't forget to bandage the entire limb in fracture of the femur. I prefer the plaster of Paris cast reinforced with strips of tin, or the moulded plaster dressing. The splint should encase the foot, leg, thigh and pelvis, and a Buck's extension should be used.

Don't forget the danger to the popliteal artery from traction and extension in a transverse fracture of the femur above the condyle; an almost right-angle fracture box or splint is the best fixation dressing.

Don't place recent fractures in plaster of Paris without due regard to swelling; either place a wire saw underneath the circular

plaster of Paris bandage, or cut it through from end-to-end when first applied, so it can be removed or readjusted when the swelling subsides; or what I like better in a great many fractures, apply moulded splints which can be made any shape desired while wet and can be removed much more easily than the circular type.

Don't forget that should severe pain develop within a few hours after a splint has been applied, the splint is either too tight from swelling, or the fracture has not been properly reduced—excepting in cases where a severe sprain complicates the fracture; if pain is caused by swelling and the splint be not removed, within a few hours degenerative changes are likely to occur in the muscle cells, which may induce ischemic myositis or (in the forearm) Volkmann's contracture. I have seen four or five such cases.

Don't forget to suspect degenerative changes due to syphilis, central sarcoma or other pathologic process producing friability of the bone, when fracture is produced by stepping upon a pebble or other slight violence.

Don't forget that in such instances there is usually a certain degree of anesthesia of the soft structures of the involved limb, and it may be difficult to prevent the patient walking too soon if a leg is fractured; and if the fracture is near a joint the condition may resemble a Charcot joint.

Don't fail to have an X-ray plate made in all fractures where perfect reduction seems doubtful, and this means nearly all of them; it is a valuable means of confirmation, and may be of great benefit to the surgeon should the result be unfavorable.

Don't attempt to plate a recent compound fracture, otherwise amputation will most likely be the inevitable result.

Don't use a plate in any recent fracture (week or ten days) until all means at hand have been exhausted in attempted reduction.

Don't forget that in plating or inlay work the strictest aseptic technic must be used, not even the gloved hand should come in contact with the wound or the wound-touching portion of the instruments.

Don't place too much reliance upon the X-ray plate in suspected fractures near the shoulder joint, and in fractures at the angle of the lower jaw, as good pictures of these localities are difficult to obtain.

Don't forget that painful passive motion is always harmful where fracture involves a joint.

Don't forget in placing any kind of a splint around or to the outer side of the knee, to pad well over the head of the fibula,

as pressure is likely to injure the peroneal nerve, producing paralysis of the muscles supplied by it.

Don't forget to pad liberally under the heel of any splint that envelops the foot, as pressure necrosis sometimes occurs. I have seen one such case in consultation following fracture of the patella, and healing was delayed for several months.

Don't forget to pad well over all bony prominences where splints have to be adjusted over them.

Don't forget that a burning sensation in the heel or other parts underneath a splint signifies that too much pressure is exerted; the splint should be immediately removed.

Don't forget that unless a fracture is complicated by a sprain, or severe contusion, when properly reduced and splinted pain should cease.

Don't forget the danger of injury to the anterior crural nerve in fracture of the true pelvis, since the fracture is most commonly through the ascending ramus of the os pubis at or near the point where the nerve crosses the bone; it is also likely to be injured in fractures and dislocations of the femur.

Don't forget that in fracture of the humerus there is danger of the musculo-spiral nerve being torn, and there is also danger of callus from the fracture interfering with the nerve.

Don't forget that in shoulder injuries complicated by dislocation, it is best not to attempt reduction of the dislocation until it has been ascertained no ribs have been fractured, for great damage might be inflicted upon the lung tissue should there be a broken rib.

Don't give a too favorable prognosis in any cranial fracture, for one never knows the extent of the crack in the skull, and infection may develop many days after the injury.

Don't forget that the auditory and facial nerves are frequently injured in fracture involving the middle fossa of the base of the skull and implicating the internal auditory meatus; when the nerve is divided permanent deafness will result.

Don't forget that the sixth nerve is more frequently involved in fractures of the base than any other cranial nerve, paralysis of which produces convergent squint.

Don't forget that in fractures of the skull the patient may present no evidences other than those of concussion for days or weeks, and then suddenly develop symptoms of an alarming or fatal character. One such case might be mentioned: A man was rendered unconscious by falling from a car and was taken to a hospital. There were no discoverable evidences of cranial fracture or local brain injury, and the next day as the patient was

feeling perfectly well he was discharged from the hospital. He continued well for two weeks, then suddenly died. Autopsy revealed a transverse fracture extending the entire width of the middle fossa.

Don't forget when a person is found unconscious, with paralytic symptoms, with or without scalp wounds, it is not always easy to determine whether the coma is apoplectic in origin, due to an extreme degree of intoxication, or the result of cranial fracture.

Don't forget that while the X-ray is not infallible, it is an invaluable diagnostic aid and should be used in all fractures, regardless of the anatomic situation, both before and after reduction.

Don't forget to carefully watch the patient suffering from fracture of the shaft of the femur dressed with circular plaster of Paris, as it may become loose from recession of the swelling; the patient may so rest in bed that his foot and leg may turn in the plaster and inversion or eversion of the foot occur.

Don't forget to be very careful in the remarks you make to the family or the patient who has a bad result following fracture, lest you be haled into court to testify against a brother doctor or practitioner. I once heard a prominent lawyer say that doctors themselves were responsible for the majority of suits for malpractice.

Don't forget that the majority of suits for malpractice have their origin in imperfect functional results or visible deformities following the adjustment of fractures; therefore in complicated cases the possibility of future impaired function should always be explained to the patient in the presence of competent witnesses.

Don't forget in ambulatory fracture of the lower extremities where crutches are necessary, to give the patient a good fit and pad the crutches well so as to prevent crutch paralysis from pressure upon the muscolo-spinal nerve.

Finally: Don't forget that eternal vigilance is the price of good results in all fractures.

## THE CLINICAL FEATURES OF CEREBRO-SPINAL-MENINGITIS AT ITS ONSET IN ADULTS

BY PAUL SAINTON, M.D.,  
Physician to the Paris Hospitals.

(*Specially reported for "Medical Press and Circular."*)

Now that seropathy is generally recognized as an effectual means of combating cerebro-spinal-meningitis it is agreed on all hands that early diagnosis becomes all-important, since it alone permits of early intervention. Lumbar puncture and examination of the cerebro-spinal fluid establishes with certainty the existence of the meningocoecal infection. For us to have recourse to this diagnostic procedure, however, we must have been stimulated by the discovery of certain signs suggestive of the meningitic syndrome. The classical meningeal tripod—headache, vomiting and constipation—permeates our ideas to such an extent that we often hesitate to recognize the meningeal reaction behind the mask which it has assumed. The clinical appearances of the period of invasion are so numerous and so variable that they are apt to disconcert us even when we are forewarned. For these reasons the disease often escapes recognition until it has reached its apogee, whereas it might have been aborted had it been dealt with in proper time. Lumbar puncture has not been resorted to, simply because, among the ordinary symptoms of an infection, the meningeal feature has escaped notice.

In the army the importance of prompt diagnosis is particularly great, since it not only allows of the treatment of the individual under favorable conditions, but obviates contamination of his environment. In the regiment, perspicacity on the part of the surgeon is the more necessary, seeing that the subjects are exhausted, are not in a condition to analyze their sensations, and are simply bowled over by the disease. The various aspects of the onset of cerebro-spinal-meningitis consequently require to be well known, and we will now describe the different clinical appearances on the strength of fourteen months' experience in an isolation hospital.

In young soldiers the onset is sudden. They feel tired and experience a sensation of discomfort and vague pain in the muscles, to which they pay no particular attention. Suddenly, during a drill, they fall out and become prostrated; indeed, they may

actually faint. The pulse is unstable, very slow at times, more frequently very rapid. After this preliminary phase the patient remains in a state of stupor. When brought to the hospital he curls himself up in bed or lies on his back with the knees drawn up. If touched he cries out, and has a difficulty in replying to questions. Sickness is rare, but he complains of more or less pronounced pain in the neck or the nape of the neck, rather than in the head. The rectal temperature is never very high, oscillating at or about 39° C., and never exceeding 39.5° C.

In some instances cerebro-spinal-meningitis sets in with coma. After a few insignificant pro-dromata, death supervenes in the course of a few hours. The patient may be found dead in bed, although the preceding evening he may only have complained of slight discomfort that did not attract much attention. This rapid onset is, however, the exception; as a rule the subject is semi-comatose. He lies down with his knees bent, breathing is labored, and there is incontinence of urine and feces. In these cases the temperature runs high. It is rare that this form is not accompanied by frank meningeal symptoms.

In young subjects cerebro-spinal-meningitis may set in with symptoms of constitutional infection of the usual type. The patient may have rigors with chattering teeth, congested face and gleaming eyes; the skin is hot, with or without copious perspiration, the prostration is well marked and the temperature may run up to 41° C. One is apt to suspect malaria, especially if the subject has dwelt in the Colonies, and, as a matter of fact, patients suffering from cerebro-spinal-meningitis have been sent to us with the diagnosis of intermittent fever.

In other instances the aspect is that of pneumonia. The patients have shivering and headache; they complain of violent intercostal pain which corresponds to the "stitch," and the temperature is 40° C. Auscultation, however, reveals no pulmonary signs.

The onset may be even more gradual; the meningeal symptoms may be latent, the disease assuming the typhoid or influenzal aspect, with the usual symptoms: dryness of the tongue, slight headache, a tendency to constipation, epistaxis, continuous fever, with more or less marked oscillations. Lastly, in the very attenuated forms, the first signs of meningitis may be indigestion, a furred tongue, and nausea, seldom culminating in actual vomiting, muscle ache, and modern fever (38° to 38.5°).

Much rarer are the cases in which cerebro-spinal-meningitis is revealed by erythema. This is the eruptive form of the disease. The symptoms, often very mild, are those of mild measles with a moderate temperature. In one of my cases the patient had a

congested throat, a scarlatinal eruption, and pains in the joints. The diagnosis seemed to be that of ordinary scarlet fever accompanied by early infective pseudo-rheumatism. In only exceptional instances does the initial eruption present a purpuric character, yet some of these cases have been mistaken for typhus. When invasion is ushered in by an eruption erythema, this is invariably accompanied by articular manifestations, arthritis of the knee, shoulder, elbow, or wrist, which should attract the doctor's attention. Aspiration of the painful joints yields a purulent fluid of a greenish color containing meningococci, and this would, of course, suggest the propriety of immediate lumbar puncture. In this way we may identify a more or less marked meningitis just when we imagine that we are in the presence of an ordinary eruptive fever.

Vastly more misleading are the appearances when the first meningoeoccal manifestation bears on the joints without any trace of cutaneous eruption. We may get arthritis of one big joint, knee or shoulder, with fever; as a rule the pain is trifling and the functional impotence not well marked. In some cases, however, the joint affection is so pronounced as to lead one to suspect gonorrhreal arthritis. Should the patient happen to suffer from urinary retention, the gonorrhreal origin will be apparently confirmed, though the subsequent course of events will show that we were mistaken.

In most cases several joints are involved, either simultaneously or in succession, as it were, by metastasis, so much so that a diagnosis of acute articular rheumatism is arrived at. This mistake is the easier to make, seeing that the retraction of the neck is assumed to be rheumatic. This form may run on for a long time before we get unmistakable meningeal symptoms. It is the source of numerous mistakes unless one has recourse to intra-articular puncture. Only the extraction of a drop of greenish or yellowish pus will suggest the existence of a meningococcia. Left to itself, the polyarticular manifestation gives place to a meningeal syndrome or to psychical disturbances. In the latter case there supervenes violent delirium with hallucinations and marked excitement resembling delirium tremens. Read Troussseau's description of cerebral rheumatism: "A robust man, a free drinker, is attacked by cerebral rheumatism on the 18th day of an attack of acute rheumatism. All at once he complains that he cannot see clearly; he screams, cries 'Stop thief!' jumps out of bed and struggles with the nurses. Put back into bed he collapses and dies. The scene has barely lasted a quarter of an hour." This description applies so exactly to the cases we have

in view that we are led to wonder whether this was not in reality the description of a case of cerebro-spinal-meningitis that had escaped recognition, accompanied by ocular disturbances and articular manifestations. The symptoms do not always run as dramatic or as rapid a course, but, none the less, the termination is usually fatal.

For that matter the primordial symptom of cerebro-spinal-meningitis may be solely and only delirium. This form is the one that most frequently gives rise to error. It is confounded with acute alcoholism or delirium tremens. It supervenes, as a rule, in a man at least thirty-five years of age, a territorial, prematurely aged or aleoholie. The delirium is violent with restlessness, muttering, and hallucinations; the patient tries to get up and run away. Sensation is sometimes dulled, sometimes exaggerated to such a degree that he dreads the slightest touch. Such conditions are hardly favorable to testing for the Kernig's sign and retraction of the neck.

In a few exceptional cases cerebro-spinal-meningitis starts right off with vertebral contracture, in which case the predominating symptom is opisthotonus, the constitutional signs being ill-defined. It is excusable to hesitate between tetanus and a meningococcal infection should one happen to get this form in a wounded subject, but lumbar puncture will settle the question forthwith. In tetanus the cerebro-spinal-fluid is clear, and cytological examination reveals no cytological reaction.

We need hardly refer to the differential clinical diagnosis of cerebro-spinal-meningitis from primary, streptococcal, pneumococcal or gonococcal meningitis, these being very rare. When they make their appearance secondarily in the course of an infection, they cannot very well be mistaken for cerebro-spinal-meningitis. It is important, however, to bear in mind the practical point that whenever we are called to a person presenting the early signs of the meningitic syndrome, we must examine the ears and ascertain whether there is any history of previous attacks of otitis. Meningitis of otic origin is usually pneumococcal, although on one occasion it was given to us to meet with cerebro-spinal-meningitis with associated meningococci. It hardly seems worth while to establish the classical distinction between cerebro-spinal-meningitis and tuberculous meningitis, because in case of doubt lumbar puncture will settle the matter.

These, then, are the different modes of onset of epidemic cerebro-spinal-meningitis as observed by us. Although this is a purely clinical review, it may not be out of place to say a few words as to the physiological reasons for this diversity. This is due

primarily to the fact that cerebro-spinal-meningitis is a septicemia, so that the meningeal phase is preceded by a phase of blood infection. The meningococcus having entered the rhinopharynx does not reach the meninges *via* the lymphatics or by contiguity, it develops in the blood and is carried in the circulation. This fundamental conception explains the infective articular and eruptive onsets where the septicemic phase is longer, and in contrast with the meningeal onset with coma, delirium and clonic spasms, in which the septicemic stage is, so to speak, curtailed.

Amid all these clinical aspects, what are the objective signs that might reasonably be expected to attract the practitioner's notice and induce him to have recourse to lumbar puncture at a time when the indications of the meningeal syndrome are as yet but faintly portrayed?

Of all the symptoms, Kernig's sign is unquestionably the most trustworthy. Sitting the patient up in bed, pressure is exerted on the thighs so as to obtain passive extension of the lower limbs. When positive the knees remain more or less bent, or extension is only obtained at the cost of sharp pain; this constitutes a suspicion of Kernig's sign. The sign cannot very well be sought for in this position should the patient be comatose or restless, or cannot grasp what is required of him; he contracts his muscles whatever we may do or say. In such cases it is better to look for it with the patient lying down. The patient being on his back, the limb is raised with one hand, the other being placed on the knee to prevent flexion. When positive, the leg is flexed on the thigh in spite of our resistance, and this flexion of the knee is painful. This procedure is very sensitive; indeed, it is open to the reproach of being almost too sensitive. In a certain number of cases it has led me to practise lumbar puncture without any meningeal reaction, but in every instance the fluid came away under pressure.

When, by any reason of the existence of arthralgia or arthritis, or any other reason, it happens not to be possible to look for Kernig's sign, the most important objective sign is retraction and stiffness of the neck. This has proved of the greatest service in doubtful cases. It is easily elicited. With the patient lying down, take his head in the palm of the hand, pressing on the external occipital protuberance and try to flex it on the trunk. When positive, we get more or less pronounced contraction of the neck muscles, limiting the movement. This movement, moreover, often causes pain. On the other hand, the patient can rotate the head in every direction if the contraction be slight.

A third sign with a definite significance is exaggerated sensation. This hyperesthesia may be cutaneous and more or less general, or it may be limited to a single group of muscles. Lastly, we must attach considerable importance to the early appearance on the patient's face of vesicles of herpes. The eruption is very frequent in cerebro-spinal-meningitis; it is particularly confluent and shows itself over the points of emergence of the trigeminal, on the alae of the nose, the lips, and sometimes on the scalp.

Extreme instability of the pulse exists in the septicemic forms and may assist in the diagnosis.

Assuming that we have withdrawn some cerebro-spinal-fluid, three conditions may present themselves. It may be purulent or turbid or clear.

Leaving on one side the cases in which it is blood-stained, if the fluid be purulent or turbid no hesitation is permissible; we must forthwith inject anti-meningococcal serum without waiting for the result of the bacteriological examination. If the fluid is clear, and if, in spite of everything, we cannot help suspecting meningitis on account of its endemic or epidemic prevalence, it is well at once to ascertain whether it is rich in albumen. If so, we are justified in injecting serum, which in any case is quite innocuous. Before doing so, in order not to incur anaphylactic risks, we must enquire whether the patient has had any serum injection beforehand, either prophylactic or curative. If there subsist a doubt as to this, we must not inject more than 5 cc. to begin with, otherwise we may inject as much as from 40 to 60 cc. of anti-meningococcal serum. Having done this, we can patiently await the result of the bacteriological examination.

# Dominion Medical Monthly

## And Ontario Medical Journal

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Published on the 20th of each month for the succeeding month. Address all Communications and make all Cheques, Post Office Orders and Postal Notes payable to the Publisher, GEORGE ELLIOTT, 219 Spadina Road, Toronto, Canada.

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Vol. XLVIII.

TORONTO, JUNE, 1917

No. 6

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### COMMENT FROM MONTH TO MONTH

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The Control of Venereal Diseases is attracting wide attention. It is a public health problem and one which should be dealt with vigorously by medical officers of health. What is wanted is a law of compulsory notification. It is a far worse pest than smallpox ever was, the latter being an open disease; the former, secret.

Some seem to imagine there has been a great increase in war time. This cannot be accurately determined. Speaking in the House of Commons, England, Feb. 28th, 1917, Mr. Forster, Financial Secretary to the War Office, said: "I think it should be generally known that the venereal rate in the Army to-day is no higher than it is in ordinary times of peace. The absence of statistics for the general population in pre-war days renders it impossible to say whether the number of cases of venereal disease in the Army is higher than in a corresponding portion of the civil population of corresponding ages."

It is, then, not only a war but a peace time problem to be dealt with; and there appears to be no valid reason to call into existence

any special machinery to deal with a problem which is assuredly one for the medical officer of health. Legislate him wider powers and let him "go to it!"

A Venereal Diseases Bill is before the English House of Commons. Before the war statistics showed that there had been a satisfactory decline in these diseases in the Army and Navy. The Royal Commission on Venereal Disease reported ten per cent. of the great towns infected with syphilis; a greater proportion with gonorrhea. No less than sixty-one schemes have been put forward dealing with the problem, and all of them have been approved by the Royal Commission. Others are receiving attention and await approval or condemnation. One outstanding feature of the present Government Bill in England is that it prevents the treatment of venereal disease by any one not a regularly qualified medical practitioner; and no remedy can be dispensed except on the written prescription of the physician. Quacks and patent medicines are thus under the ban of prohibition. It appears that for syphilis, at all events, the Government proposes to provide the remedy free.

The Province of Ontario already has adopted a similar principle in regard to antitoxin, etc. The subject seems to come wholly within the public health rights of the provinces; and there seems no well-defined reason why syphilis, gonorrhea, and chancreoid should not be included in the ever-growing list of communicable, and hence, notifiable diseases.

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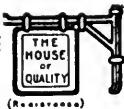
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### RADIATION IN MALIGNANT DISEASE

As old diseases are abolished or brought under control, new ones arise or new aspects of disease which were previously overlooked. But cancer remains with us in spite of half a century of special hospitals and many years of intensive research, and the new Ministry of Public Health, when instituted, will find no task of greater difficulty or importance than to deal with malignant disease in all its forms. Recent work with radium and the X-rays in cases of malignant growth has begun to raise some hopes of a possible solution in this direction. That we have in these sources of radiation a powerful ally in the war against malignant disease is now very generally admitted, but it cannot be said that it is being employed as yet to an extent justified by our present knowledge. The reports and the paper by Captain A. A. Russell Green, published elsewhere in this issue, will serve to call attention to what is now actually being achieved, and a careful examination of the results attained by the workers in Edinburgh, Manchester and Birmingham must, we think, go far to convince even the most sceptical of the value of the methods employed.

The site of the growth naturally has a material influence on the treatment. It is more or less an axiom among radiologists that the more superficial the lesion the more likely is it to be benefited by any form of radiation, and the high percentage of successful results in the treatment of rodent ulcer illustrates this clearly. Difficulties increase in direct proportion to the depth to which the disease has invaded the deeper structures, and modifications in technique are required on this account. A study of the cases given in the reports from Edinburgh and Manchester especially shows that some measure of success has attended the efforts to overcome these difficulties. The burying within the growth of tubes containing either radium or its emanation has produced excellent results, and this method holds out possibilities of permanence, since the base of the growth, from which metastasis arises, is attacked concurrently with its more superficial parts. A further and a logical application of the principle here involved would indicate the removal of the more superficial parts of a malignant growth in order that the base may be more efficiently attacked. The remarkable control of the X-rays and radium over fungation removes the surgeon's most serious objection to operating under these circumstances, and is a further argument for a still closer co-operation between the surgeon and the radiologist than exists at present.



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The choice between radium and the X-rays in dealing with cases of malignant disease is still in the stage of discussion, and it is doubtful if any good purpose could be served by advocating one at the expense of the other. Each has its advantages as well as its disadvantages, and they have much in common. The difficulty of obtaining radium in any quantity makes it rare, but its scarcity is compensated for largely by the constancy of its output—a condition that has greatly facilitated the development of radium therapy. In contrast with the irregularity of the output from the X-ray tube, radium itself gives us a profuse supply of radiation easily and cheaply obtained. This drawback to the use of X-ray is, however, materially reduced in the latest form of tube construction. Indeed, as a result of the introduction of the Coolidge tube it is not impossible that X-ray therapeutics will undergo very considerable modifications. Whichever method, however, is being practised, certain points have already emerged with more or less certainty, and the most important of these is the danger of delay. Every day's delay diminishes the patient's chances of complete recovery, and this principle applies particularly to operable cases. However favorable a case may appear, no surgeon can be sure that he has removed every trace of malignancy, or, indeed, that he himself has not scattered malignant cells over the field of operation. Nothing should be left to chance, and as prophylactic radiation involves no necessity for disturbing the dressings or the patient, it should be commenced the day after operation. Another important matter of general agreement is that within reasonable limits long applications are preferable to short ones. Perseverance, too, is a scarcely less powerful factor for success. Many patients needlessly throw away months or years of useful and comfortable existence through failure to follow the advice that is given them. In the light of the experience hitherto gained it is not too much to say that a good case has been made out for the use of some form of radiation in the great majority of malignant cases, and that its more general employment will have a favorable influence on their prognosis.—*The Lancet.*

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## News Items

Dr. Henry A. Wright, Oak Lake, Man., has removed to Winnipeg.

Captain Thomas D. Archibald, Toronto, has returned to France.

Dr. Allen Baines, Toronto, has been visiting in Philadelphia, Washington and Baltimore.

Lieutenant R. V. McCarley, Vancouver, B.C., has left for England to join the R.A.M.C.

Dr. J. G. Wright has been appointed medical superintendent of the Kingston General Hospital.

Major Pentacost, Toronto, who has been home on a short leave of absence, has returned to the front.

Captain C. A. Publow, Pictou, Ont., has been appointed adjutant of the Bramshott Military Camp.

Queen's University Medical Department is holding a summer session, commencing May 15th, for medical students who have been overseas.

Lieut.-Colonel George R. Philip, Toronto, is home after thirty months' service overseas. He will be appointed to important duty in Canada.

It is denied that Lieut.-Colonel George E. Armstrong, Montreal, has resigned as honorary consulting surgeon to the Canadian forces in England.

Dr. Harry J. Watson, Trinity, '96, who was practising for many years in Winnipeg, is now in Toronto from Bramshott, but expects to go to France almost immediately.

Lieut.-Colonel T. P. Bradley, C.A.M.C., Sarnia, Ont., medical officer of the 149th Battalion, is now second in command of the Convalescent Hospital at Buxton, England.

Dr. Hyman Lightsone, R.A.M.C., Montreal, has been awarded the Medal of Honor by the French Government in recognition of services rendered in combating typhoid in Querrien, France.

Dr. W. T. Connell, professor of pathology, bacteriology and sanitary science, Queen's University, Kingston, has been appointed to the command of the new Military Base Hospital in that city.

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Volume 48

TORONTO, JULY, 1917

Number 7

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# Dominion Medical Monthly

And Ontario Medical Journal

Vol. XLIX.

TORONTO, JULY, 1917

No. 1

## Original Articles

### THE PRESIDENTIAL ADDRESS, ONTARIO MEDICAL ASSOCIATION

BY A. DALTON SMITH, M.D., MITCHELL, ONT.

MR. VICE-PRESIDENT, Ladies and Gentlemen of the Ontario Medical Association, I should like to avail myself of this the first opportunity which has offered to thank you for the great, and so far as I know the entirely undeserved honor which you did me a year ago in electing me to the Presidency of this Association, representing as it does the Medical Profession in the large and important Province of Ontario. And though deeply sensible of the personal honor, I am still very far from appropriating it in the personal sense. I take it that you wished to recognize and to honor the claims of the members of this Association residing in the western part of this Province; and on behalf of my confreres of Western Ontario and especially of the Huron District, I desire to thank you for your recognition and for your courtesy.

It is perhaps fortunate that the Constitution of this Association rather definitely prescribes what shall be the scope and general character of the President's annual message. I shall therefore follow the example set by a large number of my respected predecessors in this office, and confine my brief remarks to some matters of general interest at this important time in the history of the world and in the history of the great Empire to which we belong, and also to a few questions of especial interest to the members of our profession in this province at the present time.

We are meeting now and for the third time under the awful shadow of the greatest war in all the world's long history. Greatest in the number and importance of the nations involved. Greatest in the vast number of men engaged in actual conflict. Greatest and most terrible because of the perfected engines of

war which modern science has produced. And greatest because of the important issues which we believe to be at stake, and which threaten not only our national existence but also the existence of those personal and political liberties which our forefathers through long centuries have bravely fought for and as bravely died to obtain.

I recall the forceful words of my predecessor who a year ago told us that, "our Empire and her Allies were engaged in a death struggle to uphold the cause of freedom and justice against a military despotism which under the guise of Kultur is seeking world power with the ethics and by the methods of the barbarian." These words, entirely true when spoken, have had their truth emphasized and confirmed through the days of another long and fatal year. It has been many times said during the past three years that the Teutonic mind was entirely incapable of understanding the Anglo-Saxon mind or the Anglo-Saxon point of view. It is perhaps equally true that we Anglo-Saxons have not, for at least a long series of years, properly comprehended the Teutonic point of view, as witness our vast and incomprehensible lack of preparation for a conflict which we can now see was being with wonderful thoroughness prepared for by our enemies. To take an illustration with which we are somewhat familiar and which serves to explain the awful horrors and barbarities of the present conflict. British and American physicians and surgeons who have visited the clinics of Berlin and Vienna during the past twenty-five or thirty years were frequently amazed and shocked by the inhumane and oftentimes cruel treatment meted out to the poor patients in these large clinics. They were in many cases not a little ashamed to view and profit by methods of treatment which would not for one hour be tolerated in the clinics of London, New York or Toronto. We now recognize that this was but the logical result of a philosophical teaching which places the interests of the State above every consideration of humanity or morality, and which, in the same way, places the interests of science, which contributes to the power of the State, also above every consideration of humanity or morality. The rights of the individual unit disappear in the larger rights and interests of the State. This is not liberty as we have learned to know and to love liberty. God help us who own British allegiance, in the future as in the past, to fight strongly, to endure much, to sacrifice much in order that our long cherished ideals of humanity, of liberty, and of personal and national morality may not perish from the earth.

What of our own Profession in this great conflict? Those in best position to know tell us that when the history of the war is written, one of the brightest pages will be that which records the splendid work of the Medical and Surgical Services. Taking the new recruit from the moment of his enlistment, searching out and if possible remedying his weak spots; with vaccination and inoculation protecting him against those infections which have ever been the bane of military camps, placing him amid sanitary surroundings; finally going with him to the trenches in the firing line, and in many cases searching him out amid the shell holes and mine craters of No Man's Land in order to succor and comfort him; the record of the medical services is one of which we may well be proud. The same self-sacrifice and courage which enables a practitioner in a country district to brave the darkness and loneliness of night, in the face of biting cold and driving storm, over miles of untracked road, at the call of duty, is not likely to desert him amid the dangers and emergencies of the battle line.

We would not pass from this subject without a warm tribute to the fine courage, unselfish devotion, and efficient service rendered by our Sisters of the nursing profession, without whose faithful and efficient help the work of the medical and surgical services could not have been done. The nursing profession has indeed gone far since, amid the pestilent hospitals and fever haunted camps of the Crimea, the devoted Florence Nightingale blazed the road and pointed the way for the nursing sisterhood for all the years that follow.

On the purely technical or scientific side, the response to the great emergency has been in every way creditable and in some respects revolutionary in character, the outstanding fact being the great triumph of preventive medicine.

Typhoid infection which in some previous wars had been responsible for a mortality greater than that from the bullets of the enemy has been so controlled as to become a practically negligible quantity and this too in face of local conditions of the most unfavorable kind. Tetanus, greatly dreaded, especially on the western war front, on account of the unfavorable soil conditions due to intensive cultivation, has been in large measure eliminated as a result of the routine employment of the prophylactic serum. I need not weary you with further reference to matters with which you are all familiar and I mention them only because of their large importance during the year that is past. So, too, the available facts in the purely surgical records

of the war show, as was expected, an improved technique in the management and drainage of septic wounds, making possible a conservative surgery which has resulted in a large saving of human life and avoidance of mutilation quite impossible under older methods and in itself constituting a bright epoch in surgical history.

While our attention has been focused on the immediate events of the war, we must not forget the many pressing problems which are crowding upon us as a result of the same. The problem of the returned soldier, and his relation to society, considered both from the moral and industrial point of view. The problem of the disabled soldier, and the duty of the State to aid him in his effort to return to a civil occupation which shall make him a useful member of society. The care and education of the blind. The question of pensions. These are a few among the many pressing questions of the present hour in which medical men are specially interested. This is neither the time nor the place to discuss any of these matters in detail. Canada, her population and resources considered, has played a brilliant part in this great world conflict, and her people will surely demand the most generous and efficient treatment of the men who have so well represented her. The men chosen for the various commissions, necessary in dealing with the different phases of this important situation should surely be chosen because of their judicial qualifications, and eminent fitness for this work and not as a reward for purely political services. We venture to express the hope that, whichever of the great political parties may chance to be in power, the problems of the returned soldier may be placed on a higher level than that of mere party politics. In view of the splendid response which has been made to the Empire's call by the very flower of the young manhood of this Dominion, and this without reference to race, creed, or political affiliation, it would for ever be a blot on the name of Canada if any man who had served his country faithfully and well were to be humiliated by the fact that it was necessary to pull a party string, or invoke a partizan influence to get those things to which the quality of his service entitles him.

We bow with profound respect and reverence at thought of those members of this Association and of our profession in this Province and Dominion who have nobly gone forth to serve and who will not return. We respectfully tender an expression of our deep sympathy with those members of our profession who have been bereaved by the death of their sons, their daughters,

perchance, or of other near friends. They have the mournful satisfaction of knowing that these lives have been sacrificed in a crusade as holy as the world has seen, and can echo the words of the Roman Horatius:

“ For how can man die better  
Than facing fearful odds  
For the ashes of his fathers  
And the temples of his Gods.”

Coming to matters of more immediate interest to the Profession in this Province. For many years it has been recognized by thoughtful men that an improved organization of the medical men in the Province and in the Dominion was a matter of the greatest importance. It is true that we have had a national association, The Canadian Medical Association. Provincial associations in the provinces and local associations in the cities, larger towns, and in many of the counties; all of these purely voluntary associations of Medical men, anxious to promote the general interests of the Profession and to profit by the scientific and social features of the meetings. These societies have filled a very valuable place in the professional life of this country. But there are many grave defects in this form of organization. These societies were isolated and had no real organic connection with each other, and embraced in their membership a minority of the members of the medical profession. It is also true that we have had in this province The Ontario Medical Council, an elected and representative body, created by statute, whose services have been of the greatest possible value, but whose activities have been largely confined to matters of education and discipline, and which, from the very nature of its composition, was not competent to speak with final authority upon those larger questions of professional and social interest in which members of the Profession of Medicine are so largely interested. The first definite step in this direction was taken by the Canadian Medical Association, when in 1907, at their meeting in Montreal, a new constitution and by-laws was adopted, in which it was provided that any Provincial Association could, by resolution of such association, become affiliated with, and thereby become a branch of, The Canadian Medical Association. The Ontario Association has been rather slow to take full advantage of this offer, and it is only during the past year that, through the activity of the Committee on By-laws, and especially of a small sub-committee, to whom the Profession in this province

are greatly indebted, that a new constitution and by-laws are now ready for adoption. In addition to providing a new constitution and by-laws for this Ontario Association, a suggested constitution and by-laws has been prepared for adoption by the city, county and district associations in the province, thus providing for a uniform organization of the local societies, each of which may, by resolution of its members, become affiliated branches of The Ontario Medical Association.

Time will not permit me to review all the various features of the new constitution; but I wish to draw special attention to the most important committee provided for. This is called the Committee on General Purposes. The Vice-President of the Ontario Association is, by virtue of his office, chairman of this committee, whose members are elected by the local affiliated societies, each society having the power to elect one representative for every fifty or part of fifty members. This Committee on General Purposes has power to supervise the work of the other committees of the Association, and in a general way has power to initiate or direct the activities of the Association. In this manner the work of the Provincial Association becomes directly representative of the Medical Profession throughout the length and breadth of the province. It is hoped that the new organization will include in its membership every reputable member of our Profession in the province. It is also hoped that without unduly taxing even the poorest member of the Profession, funds sufficient will be provided to pay the salary of a permanent all-time secretary, who in addition to his duties as secretary, shall be primarily responsible for perfecting and making effective the proposed organization.

I have referred at some length to this matter for the purpose of strongly urging the formation of a local society affiliated with the Provincial Association in every county or district in the province, and for the purpose also of strongly urging upon every Medical man in this province, and especially of the members of the Profession in the smaller villages and country districts an active interest in, and attendance on the meetings of the local societies. The local societies are the essential foundation stones upon which the larger organizations are built and are therefore vital to the whole scheme.

We are sometimes told by physicians as a reason for non-attendance at medical meetings that they are too busy to go from home, or that an important case has claimed their attention; but these excuses are sometimes entirely valid, and yet,

it is a matter of constant observation that it is the really busy and influential and interested men who continually find time to attend the meetings of the local and other Medical Associations. I can think of no greater honor than for a medical man to be elected by his fellow practitioners as a member of the Committee of General Purposes of the Ontario Medical Association.

It is only by a perfected organization that we can hope to exercise that influence in matters coming within the legitimate sphere of our work, which we as physicians and enlightened citizens are entitled to exercise.

If a better organization has been needed in the past, much more is it needed at the present time. We are living in very important days, no great upheaval like the present war can possibly leave the world as it found it; eyes are opened, forces are unchained which are bound to change the face of the future. If the signs fail not, we are now standing upon the very threshold of a great democratic and socialistic movement, world wide in its sweep and which may shake the very foundations of our present soeial and industrial strueture. Physicians, from the very nature of their touch with the great masses of men, must regard such a movement with sympathy and with a desire to help. Great wisdom and restraint may be needed if such a movement is to prove an unmixed blessing. Under such circumstances, I know of no class of men capable of exercising a more salutary influence than are the general practitioners of medicine in this or any other country. In the homes of the people, in their hours of greatest domestic felicity and exaltation, with them also in the time of greatest domestic grief and bereavement, they easily pass into a special class of trusted friends and advisers, the power of whose influence no man may measure. Let us see to it that our influence is exerted to the full on the side of moderation, and of social and industrial sanity, believing, as I think we all do, that a progressive and beneficent soeial and industrial evolution is safer and better than a drastic and revolutionary change with its uncertain future and its unheralded dangers.

Quite along the line of this thought I should like to congratulate the Committee of this Association on the Workmen's Compensation Act, which, under very able leadership, has aided in securing amendments to this Act which greatly enhances its effieiciency, and at the same time secures, to some extent, the legitimate interest of the physician or surgeon.

We as physicians are deeply interested in this kind of legislation, because it has to do, not only with industrial accident or illness, but with the whole environment of the industrial worker, on which so largely depends his general physical fitness and efficiency. It is an interesting phase of the age-long struggle between Capital and Labor, between employer and employee. Begun under socialistic influences as a measure solely in the interests and for protection of the workman, it is increasingly being recognized as also in the interest of the employer in securing better and more continuous service and increased industrial efficiency. We are likely in the near future to see a more extended application of the principle of compensation, practically to cover all forms of employment.

We are still awaiting with much interest the report of the Royal Commission on Medical Education in this province. A number of sessions of the Commission have been held during the past year, at which the representatives of the various medical bodies have ably outlined our attitude on this most important question. We have endeavored to make it plain to the Commission that the regular Profession of Medicine does not in any way desire to dictate or control the form of treatment which shall be used for the cure of disease; but we do most earnestly ask that a high and uniform standard of general and technical education shall be demanded of all those who undertake the diagnosis of disease and the treatment of those who are sick.

I desire, with some reluctance, to speak of a question to which, during the past few months, attention from many quarters has been directed, viz., to the undesirable moral surroundings in which our soldiers on duty in Britain and France have been placed, and to the consequent increased incidence of certain types of disease. Only an acute sense of public duty compels a reference to this matter, which has been the subject of warm debate in the British House of Commons as well as of correspondence in leading British newspapers. We sincerely hope that the picture has been too highly colored. Speaking on behalf of the medical men of this province, I venture to draw attention to the serious responsibility resting on the Canadian Government and on the Canadian Army Medical Department acting under the Government, to assure the people of this country that no soldier, of whatever rank, shall be discharged from military supervision and control while suffering from any form of infectious disease, and more especially of those types of disease which, in their final results entail a moral disaster and a physical de-

generacy, even to the third and fourth generation. During the past few weeks important action has been taken by some of the leading Medical Societies of Great Britain in regard to this matter, and I am strongly convinced that definite action by this and other Medical Associations in Canada would greatly strengthen the hands of the Government and the Military Medical Department in dealing efficiently with this difficult and important question. In referring to this subject I desire to make it plain that I cast no reflection on the splendid body of men who, with infinite credit to themselves and great honor to Canada, are representing this country on the battlefields of Europe.

May I be permitted to say to our visitors and guests, and especially to those who come from the great American Republic, how cordially we welcome you to our thirty-seventh annual meeting, and how greatly we value the good will which has prompted you, by your presence here, to add so much to the value and interest of our programme. The unbroken friendship between our respective countries, with thousands of miles of international boundary unmarked by forts and unvouched by great standing armies, has for more than a century of years been to all the world a great object lesson in good will and international decency. It has also been a splendid demonstration of an ideal world possibility towards which we look with longing eyes. The vision grows brighter as we realize that we are now brothers in arms, and allies in the great fight for world-wide liberty and democracy. I cannot close this brief address without an expression of my personal thanks to the officers of this Association, the chairmen and secretaries of the different sections and the members of the various committees who often, I know, at much personal sacrifice, have worked so hard and so unselfishly to complete the preparations for this meeting. Those of us who come from distant parts of the province are glad to again testify to the uniform kindness and courtesy as well as to the generous hospitality which has always been extended to us by our professional friends as well as by the citizens of this beautiful city of Toronto.

In conclusion allow me to express the hope that when next we meet the thunders and the horrors of war may have passed; that the splendid energies which are now devoted to war may then be directed to the work of reconstruction and to rebuilding the ruin which has been wrought; that the hearts of men, chastened by sorrow and refined by physical suffering may realize as never

before the larger and better things of life; that the day of true and unselfish democracy may dawn in which the privileges of the few shall disappear in the larger liberty and greater opportunity of the many. Surely then we may, with Britain's best loved Laureate, anticipate a golden era in the history of the nations.

“ When the war drum throbs no longer  
And the battle flags are furled  
In the parliament of man  
The federation of the world.

“ There the better sense of most  
Shall hold a restless realm in awe,  
And the kindly earth shall slumber,  
Lapt in universal law.”

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#### FREE DIAGNOSIS OF VENEREAL DISEASES.

Dr. J. W. S. McCullough, of the Provincial Board of Health, Ontario, announces that on and after the 20th instant facilities will be provided in the Laboratories of the Provincial Board of Health, at Toronto, Kingston, and London for the free diagnosis of Venereal Diseases. Outfits for taking specimens will be supplied to all physicians for this purpose. These outfits may be procured from the Laboratory of the Board, Number 5 Queen's Park, or from the Board's Branch Laboratory, Queen's University, Kingston, or the Board's Branch Laboratory, Ottaway Avenue and Waterloo Street, London, Ontario.

On and after this date outfits may be procured from the same Laboratories for the purpose of taking specimens for the diagnosis of Typhoid, Diphtheria and Tuberculosis. Sterilized bottles for sending water samples may also be procured from any of these Laboratories.

JOHN W. McCULLOUGH.

## TRENCH SHIN AN INFECTIOUS FIBROSITIS

BY GRAHAM CHAMBERS, B.A., M.B.,

Associate Professor of Clinical Medicine, University of Toronto; Lieutenant-Colonel,  
Canadian Army Medical Corps.

(*The Lancet.*)

Under the heading of infectious fibrositis I propose to discuss a condition with a fairly definite symptom-complex, of which the outstanding symptoms are pain and tenderness on pressure over the tibiae and tibiales antie.

During practically the whole of the time the British Army has been in France and Flanders, also in Greece, cases of this description have been continually observed. Owing to the frequency of involvement of the shin bones, and the fact that the disease is very common amongst soldiers in the trenches, it is usually called "trench shin." Cases occur, however, in men who have never been in the trenches, indicating that this term cannot be regarded as universally applicable. I suggest that the term "infectious fibrositis" be used to designate this and kindred affections, believing as we do that these diseases are of infectious origin, and that the bacteria or their toxins, causing the morbid condition, show marked elective action for fibrous tissue. They attack the fibrous structures of periosteum, ligament, muscle, nerves, and other parts which are rendered vulnerable by cold and wet, or by any disturbance which interferes with the blood-supply to the part, such as the wearing of puttees. The evidence in favor of this view will be given later in this paper under the heading of "Etiology."

### SYMPTOMS.

In addition to the outstanding symptoms which have already been mentioned—namely, pain and tenderness in the lower limbs, many others may be present, but most of them are not constant. Fever is practically always present in the early stage of the condition, and is generally rather high when the patient first comes under observation, usually about 102° F., but sometimes as high as 103° or more. In the great majority of cases it disappears within a few days, but there may be variations in this respect, as we shall see when we come to report illustrative cases of the disease. In one of the cases recorded in this paper fever of a low grade lasted for 20 days, but such persistence is, judging from our own experi-

ence, rather exceptional. The pyrexia is invariably accompanied by a polymorphonuclear leucocytosis. The association of fever and leucocytosis with the general clinical manifestations of the disease has led us to the assumption that it is of infectious origin. An interesting feature of the blood count is the presence of leucocytosis after the fever has disappeared. In one of our own cases a leucocytosis of 15,500 was still present eight weeks after the disappearance of fever. The pulse-rate nearly always remains below 100, but varies to a certain extent according to the temperature.

Headache is the rule in the early stage of the disease, and is described by some of the patients as being "jumping" or "stabbing" in character and worse at night. The temples and forehead are the most common sites of pain, and the patients frequently state that the headache is intensified by rapid movement of the eyes or pressure on the eyeballs. It is also aggravated by coughing, and is not infrequently accompanied by dizziness. In a few of the cases reported the headache has been universal, and in one described by Hunt and McNee it was so severe that lumbar puncture was performed with the object of excluding meningitis.

As already stated, the commonest sites of pain are the shin bones and tibiales antici muscles. The pain is usually of a dull aching character, increased by movement, and relieved to a certain extent by rest. It is practically always bilateral, but a few cases have recently been reported in which the left shin only was affected. Pain in the back is also a fairly constant symptom. Indeed, it may be said that pain and tenderness on pressure may be present in any part of the surface of the body. The muscles of the arms and thighs are common locations, and in a considerable number of cases the bony prominences and ligaments about the joints, particularly the knees and ankles, are painful and tender. In a small proportion of cases the pain and tenderness may be localised in nerves. A nerve was involved in five of our cases. Of these the ulnar was the nerve affected in three cases, the median in one, and the radial in one. The symptoms referred to the nerves are those of a neuritis.

The physical examination of the tibiae does not elicit anything of much diagnostic value, except extreme tenderness on pressure, which has already been referred to as an outstanding symptom of the disease, and I have never been able to satisfy myself that appreciable periostitic thickening is present, and the few skiagrams of the tibiae which I have had made do not indicate that it exists. In some cases slight redness of the skin over the internal surface can be made out.

### ETIOLOGY.

There has been a good deal of discussion as to the etiology of trench shin and trench foot, but the causation still remains more or less obscure. Three causative factors—namely, constriction, infection, and exposure to wet and cold—appear to exist.

*Constriction.*—Amongst the various contributory factors constriction appears to be a very important one. A clinical study of the cases indicates that the frequency of localization in the legs is favored by the wearing of puttees. The fact that most cases occur among privates and non-commissioned officers who are in the habit of wearing puttees supports this view. The lower third of the tibia is not commonly involved, because of the protection afforded this part of the leg by the boot. Anything which tends to impede circulation of the limb, such as tightly tied boot laces or puttees, may thus contribute to the setting up of the condition. This is recognized by the German writers, who give the disease the name “gaiter pain.” In addition to obstructing venous circulation, tight bandaging of the legs by puttees tends to produce a continuous loss of heat. This is important, because cold seems to be one of the chief causative agents of the disorder.

*Infection.*—The view that the disease is primarily due to an infection is gaining more and more adherents, and is supported by the fact that in the army it is met with almost exclusively in men who have been in or near the trenches. In my opinion the affection is caused by a micro-organism which has a marked elective action upon fibrous tissue. This theory affords an explanation of the occurrence of myalgia, periostitis or osteo-periostitis, rheumatism, and neuritis as symptoms of the disease. The severe headache which occurs in some cases may be due to a fibrosis localized in the meninges of the brain. Whilst the brain tissue itself is insensitive, the dura mater is richly supplied with nerves, and therefore a fibrosis localized in the meninges would give rise to pain in the head. This was first called attention to, we think, by Dr. Harry Campbell. If we accept this theory as to the cause of the headache in the affection under consideration we can readily explain all its characteristics (worse at night, aggravated by coughing, great intensity in some cases, etc.). I would suggest that the indurative headache of gout is due to a similar morbid condition, although Llewellyn Jones, who has given special attention to the study of the latter subject, thinks that it is due to myositic deposits.

Rosenow, who has recently made extensive investigations in regard to the elective affinity of certain microorganisms for certain tissues, finds that they undergo mutation on variation of the cul-

ture media after successive inoculations into animals, but the factors which determine this localization are still obscure. His experiments were done by intravenous injection in dogs and rabbits of streptococci isolated from appendicitis, ulceration of stomach and duodenum, cholecystitis, rheumatic fever, erythema nodosum, herpes zoster, epidemic parotitis, myositis and endocarditis. The results showed an elective affinity of these organisms for tissues similar to those from which they had been isolated, those from appendicitis producing lesions in the appendix in 68 per cent., and those from myositis in 75 per cent. of 40 animals, whilst gastric haemorrhage resulted in a large proportion of those inoculated with cultures obtained from cases of gastric and duodenal ulcer. The gonococcus exhibits a marked affinity for fibrous tissue, Friedlander's bacillus for joints, the tetanus toxin for motor ganglion cells, the diphtheria bacillus for the faucial tonsils, the meningococcus for the meninges, the pneumococcus for the lung, the typhoid bacillus for the lymphatic tissues, the virus of rabies for the central nervous system, that of anterior poliomyelitis for the anterior horns of the spinal cord, the malaria parasite for the red blood corpuscles, and the trichina spiralis for the muscles. By the inoculation of cultures of streptococci (*Streptococcus viridans*) obtained from rheumatic lesions, he produced typical rheumatic myositis in rabbits. It is interesting to note that in Rosenow's experiments the virulence of some of the organisms was increased by exposure to cold. The fact that the virulence of these organisms is intensified by cold explains the influence of a low temperature in favoring the onset of rheumatic affections. On killing the animals forty-eight hours after inoculation, many of them showed no other focal lesions than those of the organs in question, and in others the elective lesions were only severe ones, the rest being insignificant.

Flexner is trying to determine experimentally whether the lesions in the elective tissues are due to the lodgment in them of a larger number of bacteria than in other organs, or whether the bacteria lodged in equal numbers in other organs are capable of surviving only in the elective one. So far the indications point to the former supposition as the correct one, and it appears that the cells of the elective tissue draw the bacteria from the circulation as by a magnet—that is, a process of absorption.

*Exposure.*—The view that exposure to cold and wet is an important factor in the etiology, together with the fact that the symptoms include, amongst others, pain in the region of joints, ligaments, and muscles, suggests that the morbid condition may be of

a rheumatic nature. This hypothesis does not, however, materially add to our knowledge of its genesis, because it is difficult to explain exactly what is meant by the term rheumatism. If we look upon trench shin as a form of rheumatism, the great majority of cases should be classified as that variety of rheumatism which spares the joints but affects the periosteum, ligaments, nerves, and other tissues. This type is sometimes designated "abarticulär rheumatism." As examples of abarticulär rheumatism we may mention myalgia, rheumatic iritis, rheumatic sciatica, rheumatic polyneuritis, and rheumatic facial neuralgia. Possibly cases of so-called fibrous rheumatism of joints, a condition characterized essentially by morbid changes in the ligaments with little or no change in the interior structure of the joints, may belong to the same category.

The conception of the existence of a pathological condition which may be termed infectious fibrosis is, I think, a useful one in medicine, as it gives a clearer idea of the origin of some diseases which are now recognized as clinical entities, chiefly from the study of their symptomatology. Fibrous tissue is very widely distributed in the body, and may, indeed, be said to form the framework of the body. Moreover, its chemical composition, in common with that of bone, probably does not vary materially with the organ to which it belongs. It is therefore easy to understand that the fibrous tissue in the muscles, nerves, and ligaments will exhibit an elective affinity for the same causative agents of disease as it appears to do in the condition which is now under consideration.

#### DIAGNOSIS.

In the recognition of the disease the important points are the following: (1) A history of headache and fever in the early stage; (2) the presence of leucocytosis, even in the absence of fever; (3) pain and tenderness on pressure over the tibiæ and tibiales antici muscles; (4) the presence of a neuritis, particularly of the upper extremity; (5) the presence of pain in the ligaments and bony prominences around joints; (6) the greater intensity of the pain in the head, muscles, bones, and joints at night; (7) the prolonged course of the disease, usually from one to three months.

The characteristics of the pain, whether the morbid process be localized in the head, bone, ligament, joint or nerve, are sometimes of value in diagnosis. As already stated, in most cases the pain is worse at night. Some patients state that its intensity is increased by damp weather, others that it is aggravated by the application of heat. A common statement is that it is of a gnawing character,

with exacerbations, during which it is "jumping" or "stabbing." Headache and pain in the shins are frequently so severe at night that it is impossible to obtain sleep without the administration of morphine.

#### DIFFERENTIAL DIAGNOSIS.

The symptomatology of trench shin may closely resemble that of trench fever. Indeed, there are some writers who maintain that the two afflictions are the same. Major T. Houston and Captain J. M. McCloy are two authors who hold this view. They recognize four different types, two described by McNee and Renshaw and two by themselves. They are of the opinion that all the types have the same symptomatology at the beginning, the difference being dependent on the course and duration.

*Type 1.*—In this type the temperature, which may rise as high as 103° or 104° F. during the first one or two days, tends to fall on or about the third day to normal or even sub-normal. It then rises again, and fever may last for six days to a week, after which the temperature falls, with complete relief of the symptoms.

*Type 2.*—This type is less common, and exhibits the characteristics of relapsing fever. The initial attack lasts about three days, and when the temperature falls the patients feel so well that many of them have been returned to duty. Some days later the symptoms recur, often with a temperature of 103° or 104°. This relapse differs from that seen in the first type of case, in that it is the first of a series. Hunt and McNee state that the average duration of the relapsing type is not less than three or four weeks. In individual cases it may be considerably longer than this. McNee and Renshaw state that they have seen only 20 characteristic cases of this type, but that their experimental results indicate that it may supervene on the basis of the first type, showing that both forms are simply varieties of one and the same disease.

*3. Myalgic type.*—In the majority of these cases there was no history of previous rheumatism. It differs from the types previously described in that there is only one period of pyrexia, lasting from a few days to a week, whilst the myalgic pains, which are usually limited to the lumbar region and lower limbs, especially the shins, persist after the pyrexia has disappeared, in some cases for several weeks. Pain is worse at night and in cold, damp weather.

*4. Septicemic type.*—In the septicemic type the onset is almost always sudden, and fever, without intermissions, persists for as long as from eleven to thirty days. Headache is a most persistent and severe symptom, and there are sometimes definite rigors;

nausea, and vomiting. These last symptoms appear to be comparatively rare in the other three forms. After the temperature has fallen to normal recovery is usually rapid, there being no recurrence of the pains.

According to the above classification the affection which forms the subject of this paper would be of the myalgic type. I am not convinced that the classification of Major Houston and Captain McCloy is correct. The important symptoms of trench shin, in addition to the fever and leucocytosis, are headache and other symptoms which might be called rheumatic. The parts involved have been referred to in discussing the symptomatology. In trench fever headache and pain in various parts may be present, but in the great majority of cases these symptoms are not outstanding and are only present during the febrile stage. In some cases, however, pain in the shins may be present for two or three weeks, but this pain is not usually intense. Moreover, headache and soreness or pain in the back and other parts are common manifestations in the febrile stage of many morbid conditions. The difference between the origin of these symptoms and the origin of the manifestations of trench shin is dependent upon the difference in the affinities of the bacteria for fibrous tissue.

#### PROGNOSIS AND TREATMENT.

The course of the disease is very slow, but, as will be seen later, it varies considerably in individual cases. Recovery eventually takes place, however, after a period of two or three weeks to two or three months. As far as we know, there are no sequelæ. The best guide to progress in recovery is the intensity of pain, and if it gradually diminishes from day to day recovery may be expected in from two to three weeks. The leucocyte count also sometimes gives valuable indications in regard to prognosis, as recovery within a short time may be looked for if it is within normal limits.

The treatment is chiefly preventive. It is obvious that one of the first essentials is the avoidance of anything, such as tight boots or puttees, which is likely to obstruct circulation. Lorrain Smith, Ritchie and Dawson suggest the advisability of substituting moleskin leggings for puttees. These provide the protection of an ample cushion of air and drain more readily than puttees, thus minimizing the loss of heat. Delepine suggests waterproof bags made of oiled silk, similar in shape to fishing-boots. The outer sock, which should be sufficiently large to draw over the oilskin, should be made of material which is not liable to shrink when wet.

In a book describing the preventive measures which were found most effective in the winter campaign of the Japanese Army in Manchuria it is recommended that the feet, legs, and, if necessary, the whole of the body, should be thoroughly rubbed with animal fat or animal oil. In order to obtain the maximum effect the oil should be of high boiling point and used in considerable quantity. Daily massage of the parts between periods of trench duty has also been recommended. A similar preventive measure has been much used in the present war—that is, applying vaseline or whale-oil liberally to the feet and legs.

In the curative treatment measures for treatment of an infectious disease are indicated. Rest in bed is essential. Acetyl-salicylic acid and phenacetin may be tried for the relief of pain, but it is often necessary to give morphia. In cases in which the pain in the tibia has been very severe an incision through the periosteum has sometimes been made, and is said to be of much value.

McNee and Renshaw, on the assumption that antibodies to the infected virus might develop in the course of spontaneous cure, removed 20 c.c. of blood from a patient ten or twelve days after his last relapse, and four hours later injected the serum into the veins of two who were just beginning to relapse. It appeared to have no influence whatever on the course of the disease.

#### ILLUSTRATIVE CASES.

*Case 1.*—Private H. The patient had been formerly a coal-miner, and had been in the service for one and a half years. His habits had been temperate and his previous health very good. He was admitted to No. 4 Canadian General Hospital, Salonica, on January 27th, 1916. He stated that his illness commenced three days before admission, the first symptoms being headache and pain in the shins. He attributed the pain in the shins to exposure and a march of nineteen miles. On the march he wore puttees, but they were not tight.

*Present condition.*—The patient complains of pain and a burning sensation in the shins, the dorsal surface of the feet, and the central portions of the tibiales antici, the pain being more severe at night and in wet weather. At night it is continuous, with exacerbations every few seconds, during which it is stabbing in character. There is pain on extension of the foot. The parts previously referred to are painful on deep pressure. Reflexes normal and active. No disturbance of epicritic sensation. Urine normal. White blood corpuscles 19,000.

*Case 2.*—Sergeant-Bugler M. The patient, aged 28, had suffered from rheumatic fever at the age of 10 years. He has been in South Africa for two years and in India for seven years, and during these nine years had had three attacks of fever. He stated that aching pains in the leg had been fairly constant during the last month. His general health had been fairly good, but he felt weak and his appetite had been poor. His throat had not been sore, and his teeth were in good condition. There was no gastrointestinal disturbance. During the last three weeks he had been in the hospital, but the pain had not been relieved.

*Present condition.*—On examination the heart, lungs, and urine were found to be normal. White blood corpuscles 22,000. Temperature normal. Soreness and pain are limited to the inner surfaces of the tibia and the dorsal surfaces of the feet. The tibiales antici are not involved. Both flexion and extension are more painful than normal. Reflexes normal.

*Case 3.*—Sergeant B., admitted to No. 4 Canadian General Hospital on January 25th, 1916. He stated that about the middle of last December he began to suffer from headache and pain in the back and thighs, especially on rising in the morning. It usually subsided after he had been moving about for a while. On January 1st the pains had seemed to leave the back and thighs and become localised in the shins and front and side of the knees. There was also slight pain in the elbows.

*Present condition.* Pain in shins and at the side of the knees over the tuberosities of the femur. It was of a dull throbbing character and was worse at night. White blood corpuscles 8,000.

*Case 4.*—Sergeant W., aged 31, admitted to No. 4 Canadian General Hospital, Salonica, on January 24th, 1916. The illness commenced on January 16th with fever, headache, and pain over the shins, which continued for four days, being worse at night. The headache lasted three days. When taken ill the patient was working at headquarters and had had no marching or exposure since December, when he was in Serbia.

*Present condition.*—There is marked tenderness over the bellies of the tibiales antici on both sides, and slight tenderness over the crests of the tibia, together with occasional pain in the knees. Dorsiflexion of the foot is painful. Pain is relieved by the application of heat. White blood corpuscles 16,000. Examination otherwise negative.

*Case 5.*—Private W., aged 26. Two months previously, while in Egypt, he had found that he was unable to march owing to pain

and stiffness in the legs. There was no fever. He had not been in the trenches or exposed to cold. During his previous seven months in France he had had no trouble.

*Present condition.*—On admission to No. 4 Canadian General Hospital on January 26th complained of pain in the knees and shins. There was marked tenderness over the tibiales antici on both sides, especially above the ankles along the course of the tendon, and slight tenderness over the internal surfaces and crests of the tibia. The pain was worse at night, and not relieved by heat. Dorsiflexion of the foot painful. No fever. White blood corpuscles 14,000. Examination otherwise negative. On February 5th the white blood corpuscles numbered 13,500. Pain still severe, the slight tenderness over the tibia remaining as before.

*Case 6.*—Private L., aged 34, admitted to No. 4 Canadian General Hospital on January 24th, 1916. Ten days previously, whilst on guard, he began to suffer from headache and pain in the front of the legs. It came on quite suddenly. He had been trench digging both in France and Salonica, but had not recently been exposed much to either cold or wet.

*Present condition.*—There is tenderness over the internal surfaces and the crests of the tibia. The tibiales antici are tender on pressure. Pain is worse at night and increased by heat. There is a callous area over each instep. Temperature 101.4° F. White blood corpuscles 12,000. On February 1st marked pain and tenderness over internal surface of the tibia, in bellies of tibiales antici on both sides; worse at night. Since admission the temperature has been irregular, going up to 100° F. White blood corpuscles 10,000. Examination otherwise negative.

*Case 7.*—Lance-Sergeant B., aged 24, had enlisted in Toronto on May 28th, 1915. In England December 1st, 1915. In France February 20th, 1916. Had an attack of la grippe about the end of February, 1916. The present illness began during the first week of June with headache, pains in the joints and muscles, and fever. The headache was aggravated by coughing and was worse at night. The patient was sent to a field hospital, where he remained for nine or ten days. Whilst there the temperature was normal or subnormal in the morning and slightly elevated at night. He returned to duty, but was unable to carry on. He was sent to hospital, Boulogne, and from thence, on June 30th, to the Ontario Military Hospital, Orpington.

*Present condition.*—Complained of weakness, of loss of appetite, and of pains in shoulders, elbows, wrists, knees, and ankles.

Three days later—i.e., July 3rd—pain experienced in shins, which gradually became worse, and at the same time the pain in the joints became less severe. In about a fortnight the pain in the joints subsided. That in the shin bones was worse at night and seemed aggravated by dampness. Relief for an hour or two was sometimes obtained by taking 10 grains of acetyl-salicylic acid. The pain was of a growing character and was localised in the middle third of the tibia. The surfaces of the bones were sensitive and tender on pressure. Since admission the temperature had been normal or subnormal. On August 13th white blood corpuscles, 15,400; polymorphonuclears, 65 per cent.; lymphocytes, large and small, 31 per cent.; eosinophiles, 4 per cent. On the 25th the patient complained of a dull pain and tenderness on pressure at the back of the right shoulder, at about the level of the sixth or seventh cervical vertebra. On the 28th there was still pain at the back of the right shoulder. There was also pain along the posterior part of the internal surfaces of the arm, extending along the ulnar side of the forearm into the little finger and the adjacent half of the ring finger. The ulnar nerve was sensitive to pressure at the elbow. No material weakness of muscles supplied by ulnar nerve. Electrical reactions normal. Hyperesthesia of little finger and adjacent half of ring finger. Pain at back of right shoulder produced by raising the right arm from the side. Slight pain in shin bones. On September 9th the pain had almost gone from the shins, and that in the right arm had lessened. On October 3rd the patient was free from pain and his general condition was fair.

The interesting points of this case are: (1) During the first two or three weeks of the illness the pain was chiefly limited to the joints; (2) the tibia became involved during the third week; (3) the ulnar nerve became involved during the eighth or ninth week; (4) the comparatively high leucocyte count in the absence of fever.

*Case 8.*—Sergeant B., aged 43. Service 23 months. Health before enlistment good. On July 7th had been operated upon for piles at Dannes Camiers, and subsequently made a good recovery. About three or four weeks later the present illness began with pain at the back of the neck and left shoulder, the temperature being elevated. Three days later pain in shins and forearms. On August 12th transferred to Ontario Military Hospital, Orpington.

*Present condition.*—August 13th: Complaint: Pain in shins, forearms, and in a small area near the seventh cervical vertebra

at the back of the left shoulder. Much worse at night. Pain in shins continues and of a gnawing character, with exacerbations, during which it radiates to the thighs and feet and is equally severe in both legs. The posterior and internal surfaces and crests are slightly sensitive. Pain and tenderness in the tibia are limited to the middle thirds of the bones. In the forearms there is little pain, but there is tenderness on pressure for about five inches above the wrist in a longitudinal line between the radius and ulna and at the back of the left shoulder just to the left of the seventh cervical vertebra. Raising the left arm from the side causes pain in the back of the left shoulder-joint. Temperature slightly elevated. White blood corpuscles, 15,500. The differential count gave the following percentages: polymorphonuclears, 75; small mononuclears, 15; large mononuclears, 6.5; basophiles, 1.5; eosinophiles, 1.5; transitional, 0.5. September 2nd: Very little pain in shins. Area at back of shoulder and forearm still tender. Temperature has been normal for six days. 5th: Improved; very little pain, and only slight tenderness in areas mentioned above. October 18th: Pain completely gone.

In this case, although the pain at the back of the left shoulder was similar to that of Case 7, there was no pain along the course of the ulnar nerve.

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# Dominion Medical Monthly

And Ontario Medical Journal

EDITED BY

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Published on the 20th of each month for the succeeding month. Address all Communications and make all Cheques, Post Office Orders and Postal Notes payable to the Publisher, GEORGE ELLIOTT, 219 Spadina Road, Toronto, Canada.

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Vol. XLIX.

TORONTO, JULY, 1917

No. 1

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## COMMENT FROM MONTH TO MONTH

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The Militia Department and Public Health are intimately associated in the present day. Formerly it has been sought to consolidate the various health services in the federal government under one responsible minister of the crown; national quarantine, administered under the Department of Agriculture by the Director-General of Public Health, was looked to as the most likely department. Indeed, whenever the question of a Department of Public Health came up for discussion, the Hon. the Minister of Agriculture was looked to to make a pronouncement of some sort on the part of the government. Times have changed. Great changes may be contemplated at Ottawa. It is understood that the resignations of all the ministers are in the hands of the Prime Minister. By the time this appears in print those changes may have been inaugurated.

When last we wrote on this subject a federal department of health, as it has long done, appealed to the medical profession. What has been since published of the thoughts of individual members of the profession upon the subjects also points in that direction. Great leadership is urgently required in the militia as well as in public health. What more urgent than the appointment to the office of Minister of Militia than a well-trained

military man! If a man could be found who understands the Army Medical Services, public health, and hospitals, in addition to being a military man of first-class training and experience, then, indeed, could the militia and the medical services congratulate the public at the discovery of such a man. Should he then be given charge of the Department of Militia, a seat provided for him in the Senate, ensuring a seat at the Executive Council, and a tentative plan adopted of gradually bringing all the medical services of the government under that department—national quarantine, first; immigration, second; marine hospitals, third, etc., etc.

In the medical profession of Canada, there are probably three well-known, outstanding, distinguished medical men who are capable of filling the bill. Two are abroad; the other has recently returned to Canada. To the Prime Minister of Canada, Sir Robert Borden, will fall the task for the present of choosing men for all the departments of government who will have the confidence of the people. Public sentiment in Canada to-day demands leadership; and in these two particular fields of endeavour, Militia and Public Health, the best the country can provide, should be at the helm.

General John Taylor Fotheringham, C.M.G., Toronto; Colonel Murray Maclaren, C.M.G., St. John, N.B., Past President of the Canadian Medical Association; Colonel Herbert S. Birkett, C.B., Montreal, Dean, Medical Faculty, McGill University, would have the confidence of the militia and the medical profession.

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### BOOK REVIEW

*International Clinics.* EDITED BY H. R. M. LANDIS, M.D.,  
Volume II. Twenty-Seventh Series, 1917. Philadelphia  
and London: J. B. Lippincott, Canadian office, 201 Unity  
Building, Montreal.

The feature of this volume is the very large number of clinics reported—ten in all. This practical manner of dealing with several interesting subjects will appeal to subscribers. There are in addition five articles on treatment; three in medicine: one in dermatology: two in gynecology: one in ophthalmology: four in surgery: one, medical history. The book is generously illustrated.

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**ONTARIO HEALTH OFFICERS' ASSOCIATION**

The Ontario Health Officers' Association held its sixth annual meeting in the Medical Building of the University of Toronto, on Tuesday and Wednesday, the 29th and 30th of May. The attendance was upwards of 300.

The meeting was held as a general session during the first day, and upon the second day was divided into a general session and one upon public health administration.

Dr. A. J. Macaulay, M.O.H. of Brockville, made an ideal presiding officer.

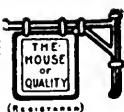
Suitable reference was made to the death of the late Vice-President, Dr. Vardon, of Galt.

The first session included a discussion on venereal diseases, the paper, with slides, being given by Dr. Gordon Bates, of Toronto. The discussion was carried on by Drs. C. H. Hair, C. E. Trow and others.

The subject of "Infantile Paralysis" was presented by Dr. H. W. Hill, M.O.H. of London, who gave a most instructive paper upon this subject. Papers upon the same subject were given by Drs. Durocher and Cruickshank, of Windsor, and by Dr. Green, of Stoney Creek. There was a free discussion, led by Dr. Amys, M.O.H. of Peterborough.

In the afternoon session, after a short address by the President, Dr. C. J. Hastings gave, on behalf of the Mayor, an address of welcome. This was succeeded by the address of the day, given by C. E. A. Winslow, Professor of Public Health, Yale School of Medicine, New Haven, Conn., upon the subject of "Safeguarding the Health of Young Children." Professor Winslow's address gave a description of some practical methods of life-saving. He pointed out that the campaign carried on in New York, has reduced the infant mortality rate, in that city from 154 in 1900 to 93 in 1916, which means a saving for that city of over 8,000 lives a year. Recent estimates of the comparative value of various lines of public health endeavor show that infant welfare work offers one-fifth of the total possibilities of life-saving which are open to the health department.

Professor Winslow pointed out that every community of 10,000 inhabitants should have not a "milk station" merely, but a baby's clinic and dispensary where children may be brought for weekly examination and from which public health nurses may



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go out to carry instruction to the home of the individual mother. In larger cities there should be such a station for every 20,000 of the population. The nurses should also undertake the pre-natal care of mothers. The experience of Boston has shown that such care may result in cutting the infant mortality to one-half the figure prevailing among families not receiving pre-natal advice. For the rural communities there should be public health nurses backed by available competent pediatric knowledge which might be secured by co-operation with the infant welfare organization of the nearest city (*or with that of the Provincial Board of Health*).

The essayist said that the deaths of infants are due principally to three great groups of causes: (1) Prematurity or congenital debility and other causes operating at the time of birth; (2) Gastro-intestinal infections; (3) Pneumonia and other respiratory diseases. The machinery of the infant welfare station helps in dealing with all of these groups, the more especially with the second, namely, summer diarrheas and other digestive disorders. Means of procuring adequate and safe milk supplies are indicated in the paper and the value of inspection and pasteurization pointed out. The importance of measles and whooping-cough as public health problems were discussed, especially in the very earliest years. The fatality of whooping-cough is five times as great under one year as over five years, of scarlet fever ten times as great and of measles twenty times as great. These facts indicate the great necessity for the protection of young children against infection. Schools should *never* be closed during epidemics. The services of the public health nurse should be secured and an examination of school-children made every morning for the detection of the disease in its earliest stages.

The whole paper is of the greatest value, and should be read by every health officer.

The Hon. W. D. McPherson, Provincial Secretary, made a short address of welcome to the members of the Association, in which he showed evidence of intense interest in public health matters. His address was received with great enthusiasm.

Dr. Chas. J. Hastings and Dr. J. F. Hanly each gave comprehensive addresses upon public health nursing.

Dr. F. D. Canfield read a paper on "The Adrenals," and the veteran Chairman of the Provincial Board, Dr. Adam Wright, spoke upon "Rest and Sleep as Factors in Disease Prevention."

On the second day the morning session of the Association was carried on in two sections. The general session included papers

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upon "Sex Hygiene," by Dr. N. W. Woods, and "Mendelism," by Dr. Jas. Roberts. There were two splendid papers on the subject of "Tuberculosis," the one by Dr. D. R. Craig and the other by Dr. A. R. Hanks. Dr. Jenner discussed "The Public School as a Place of Instruction in Practical Sanitation."

In the section on Public Health Administration there were papers upon the "Difficulties of Medical Officers," by Drs. Macdonald, D. A. Kidd and F. H. Mitchell; on "The Education of the Public," by Dr. H. Logan; upon "The Public Health Act," by Dr. A. Nichol, and upon "The Relationship of the District Officer to the M.O.H. of the Municipality," by Dr. G. F. Richardson.

Most excellent papers upon "Ways and Means of Conducting Public Health in the Average Town," were given by Dr. C. A. Patterson and upon some practical points in "Enforcement of the Regulations," by Dr. H. Ross.

Dr. W. Doan, of Harrietsville, and Dr. F. King, of St. Catharines gave interesting papers upon their "Experiences as Medical Officers of Health."

On the afternoon of this day the session was entirely taken up by papers on the subject of "Epidemiology." "Measles, Scarlet Fever and Diphtheria" were discussed by Drs. A. A. Metcalfe, J. C. Hutchinson and A. H. Speers. "Variola" was the subject of a paper by Dr. J. P. Boyle; while "Disinfection" was discussed by Drs. R. K. Anderson and James Campbell.

The matter of "Communicable Diseases" was the subject of papers by Drs. J. H. Howell, W. R. Mason and Jas. McPotts; while Dr. S. F. Millen ably handled the question of "Typhoid Fever in Rural Communities." All these matters were the subject of general and wide discussion.

Drs. Fitzgerald and McCullough answered the questions submitted in the "Question Drawer."

The officers and committees elected were as follows: President, Dr. H. W. Hill, M.O.H., London; 1st Vice-President, Dr. G. F. Cruickshank, M.O.H., Windsor; 2nd Vice-President, Dr. E. A. Williamson, M.O.H., Kingston; Secretary, Dr. J. W. S. McCullough, Toronto.

The Committee on Papers and Arrangements comprises Drs. G. A. Dickinson, J. J. Harper and J. W. S. McCullough.

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## News Items

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Captain Harry J. Watson, Trinity '96, (Winnipeg) has been in Toronto from Bramshott.

Dr. M. F. E. Graham, assistant physician, Brockville Hospital for the Insane, has been appointed resident physician of the Royal Victoria Jubilee Hospital, Victoria, B.C.

By the will of the late Sir William Macdonald, Chancellor of McGill University, Montreal, the Faculty of Medicine will receive \$500,000; Montreal General Hospital, \$500,000; Montreal Maternity Hospital, \$100,000.

Dr. Thomas Futcher, Baltimore, M.D., has been visiting his old home in St. Thomas, Ontario. He is going overseas and will be given a high command with the Canadian Army Medical Corps, and will be employed in an advisory capacity with Sir William Osler.

Lieutenant-Colonel Charles Carter, medical officer of the Thirteenth Royal Regiment, Hamilton, Ont., is to succeed Lieutenant-Colonel Cam. Warren as assistant A.D.M.S., Toronto. Colonel Warren has left to be chief medical officer to the British offices in New York City.

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**THE ELEMENT OF UNCERTAINTY.**—In the treatment of disease the element of uncertainty with special reference to individual idiosyncrasy, must always be considered, but the element of uncertainty as to the therapeutic action of a remedy can be eliminated providing ordinary care is exercised in selecting drugs or remedies which are not inert and have proven their efficiency.

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# Dominion Medical Monthly

And Ontario Medical Journal

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Vol. XLIX.

TORONTO, AUGUST, 1917

No. 2

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## Original Articles

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### SOME OBSERVATIONS ON THE USE OF DIURETICS IN NEPHRITIS \*

HENRY A. CHRISTIAN, M.D., BOSTON.

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If you were asked what to do with a nephritic patient whose renal function was below normal, the natural reply would be, "Take such steps as are necessary to restore renal function to a normal level." To-day I wish to devote my time to a discussion of what part diuretic drugs should play in such an attempt to restore renal function.

It is interesting at the outset to see what advice we are given as to the use of diuretic drugs in nephritis by writers in some of the recent systems of treatment. In Forchheimer's Therapeusis of Internal Diseases (Appleton, Vol. IV), Miller says: "Diuretics may be used in all forms of nephritis, provided we avoid those preparations which act as intense kidney irritants." "The various alkaline diuretics, caffein and digitalis, may be safely administered in all forms of nephritis." . . . "Animal experimentation and clinical experience have shown that when the kidney has lost its ability to eliminate water it has also lost its power to respond to diuretics." . . . "Diureties may be tried to increase the flow of urine, but are rarely of value in acute nephritis." . . . "Diureties usually have the desired physiological effect in chronic parenchymatous nephritis." Under chronic interstitial nephritis no advice is given as to the use of diureties.

In Hare's Modern Treatment (Lea & Febiger, Vol II), Tyson, in speaking of acute nephritis, after referring to catharsis, says: "Diureties of the saline class should be simultaneously used." . . . "To these may be added the cardiac diureties, tincture of digitalis or tincture of strophanthus." . . . "Failing

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\*Read at meeting of the Ontario Medical Association, Toronto, June, 1917.

to secure diuresis by these measures, other diuretics may be resorted to," and he mentions theobromine among these. . . . "These diuretics (theobromine, etc.), are thought to act directly on the kidney or its blood vessels, and not through the heart as digitalis and strophanthus. They, therefore, require a certain integrity of the kidney to become efficient." In regard to chronic parenchymatous nephritis, Tyson says: "The kidneys which, as intimated, are still quite responsive to diuretics, should be greatly stimulated. In speaking of chronic interstitial nephritis he says, "The elimination of solids is slightly increased by stimulating the flow of urine, but toxic excretion is better stimulated by acting on the skin and bowels."

In Musser and Kelley's Practical Treatment (Saunders, Vol. III), Le Fevre writes, "Increased elimination of the kidneys is generally impossible when uræmia occurs in acute diseases of the kidney. The stimulation of the kidneys by diuretics increases the inflammatory condition." . . . Of uræmia in chronic cases, he says, "The danger of stimulating the kidneys by the different forms of diuretics is much less than in the acute inflammatory type, although the uræmia may be associated with more or less acute changes in the kidney." In acute nephritis Le Fevre on the whole favors the use of mild diuretic drugs, but there is an undereurrent of doubt as to their real value. As to theobromin, caffein and theocin, caution is urged. He says, "Granting that they do not produce in the normal kidney any irritation, in the inflamed organ they have the power of increasing the pathologic hyperæmia and so increase the intensity of the inflammation." In chronic parenchymatous nephritis, referring to these same drugs, he says, "The use of these preparations is without danger and often very efficacious," but he cautions against the use of diuretics when there are symptoms of acute inflammation. As to chronic interstitial nephritis, Le Fevre says, "The use of diuretin, agurin and theocin is indicated when diminution in the amount of urine and the appearance of œdema are due to failure of cardiovascular compensation." These three writers represent quite well the present-day teaching in regard to diuretics.

This problem of the use of diuretic drugs in patients with nephritis is one that has interested me for some time. From experimental work on animals with acute nephritis, I and my associates have shown very clearly the injurious effect of various diuretics (theobromin sodium acetate,<sup>1</sup> theocin, caffein, potassium acetate and water<sup>2</sup>), in that they tended to shorten rather

than to prolong life, and that their effect, as measured by renal excretion, was *nil*, inconstant or actually depressant,<sup>3,4</sup> dependent somewhat on the severity of the renal lesion. Even so mild a diuretic as increased amounts of water at times seemed to produce damage. If this is true for animals under experimental conditions, it seems likely that the same would apply in the human being with acute nephritis.

In one form or another the three writers, whom I have already quoted, express scepticism about the efficiency of diuretic drugs in acute nephritis. Miller says the kidney that has lost its power to eliminate water has lost its power to respond to diuretics, and points out that to increase the flow of urine in acute nephritis they are rarely of value. Tyson points out the necessity of a certain integrity of the kidney. Le Fevre warns that diuretics may increase the inflammatory process.

It seems to me perfectly clear that diuretic drugs are capable of doing injury in acute nephritis. All writers seem pretty well agreed on this. That being the case, the possible advantages of diuretic drugs ought to be clearly proved in order to justify their use when they may do harm.

Let us stop to consider what action diuretic drugs may be supposed to have, and then determine whether such hypothetical actions are apt to benefit the patient with acute nephritis. Finally, is it probable in the given case that the diuretic drug will produce desirable effects? Diuretics, if effective, will increase the urine output. In so doing they increase the excretion of water and solids. To increase the water output may be beneficial in several ways; to remove water accumulated within the body, to cause excretion of more solids, to dilute and so decrease the effect on renal structures of substances excreted through the kidneys.

In most patients with acute nephritis, œdema is moderate and a cause of no discomfort or danger. So in most patients with acute nephritis, the mere removal of water is of no practical use. In a few patients œdema is excessive and discomforting; its removal would be beneficial. Unfortunately, however, in most patients with œdema from acute nephritis, the kidney will not respond to diuretics, as I have pointed out in some previous papers.<sup>5,6</sup> Rarely it will, and so cautious use of diuretics is justified. It must be realized that diuretics can injure, and so, if moderate doses do not increase the urine flow, it seems wisest to stop their use rather than to increase dosage.

If moderate doses increase urine flow, continuation of their use is indicated until such time as urine flow begins to decrease.

To cause an increased excretion of solids, apart from water, would seem to be of no value unless the retention of these substances produced toxic effects. There seems little evidence that most of these solids are injurious, even if retained in cases of acute nephritis, apart from the osmotic effect in determining oedema, and as we have already seen, oedema rarely troubles in acute nephritis. As to the hypothetical toxic substances, if their excretion could be increased by diuretics, obviously it would be very advantageous. That they are, or can be, seems highly problematic. Certainly no direct proof exists, and a better method seems available through the intestinal tract and skin by bleeding. Anyhow, most cases of acute nephritis are not toxic in this sense, and on this basis diuretics are not indicated. In the patients with uræmia, diuretics are just as apt to aggravate the renal lesions, decrease elimination and so do harm rather than good.

Can solids in concentrated form injure the kidney during excretion? This again is problematic. It is the basis of the increased fluid intake treatment of acute nephritis. The real effect of this still awaits clear proof. It would seem desirable on this theory to increase urine flow when that is possible, provided such increased activity does not injure further the already damaged kidney. The best way to do this, it seems, would be to increase the fluid intake rather than to use diuretics, and even this possibly may lead to increased retention from fatigue of the injured renal cells.

In my own experience, I have yet to see the case of severe acute nephritis in which I felt that diuretic drugs did any good. I have certainly seen cases in which damage resulted. In a mild case I can see no reason whatsoever for the use of diuretic drugs. For these various reasons in practice I use diuretic drugs in acute nephritis but extremely rarely, and most of my use has been with caution and as part of a study to see whether I can demonstrate good effects. In this, so far I have failed it seems to me, if results are evaluated with due allowance for the accidental. In acute nephritis I advise against the use of diuretics, except in the occasional case, and of their value in such a patient I am extremely sceptical. The routine using of diuretic drugs in acute nephritis certainly is to be advised against.

In cases of chronic nephritis with oedema, the writers already referred to seem to place more faith in the efficiency of diuretic drugs than they do in cases of acute nephritis. In such patients do diuretics cause a diuresis? In answering this question, a sharp line must be drawn between those patients in whom oedema is of purely nephritic origin and those in whom it is in large part, if not wholly, of circulatory origin. As I see patients with chronic nephritis, the second group is by far the more frequent. In such patients usually there is evidence of myocardial insufficiency, often such disturbances are found as auricular fibrillation or other forms of arrhythmia, pulsus alternans or disturbances in the form of ventricular complexes as revealed by electrocardiographic study. These patients have dyspnoea and cyanosis. They look like patients with cardiac insufficiency. There are albumen casts in the urine, and tests of renal function show depression of renal activity. These renal disturbances, however, are largely circulatory in origin, and such patients on digitalis improve in general condition and their urine output increases.

In the group where oedema is due to renal insufficiency, there are no signs of cardiac insufficiency. Usually albuminuria is more marked. Digitalis in such produces little, if any, improvement. Renal function is depressed.

What is the action of diuretic drugs in such cases? I have previously made a report on some such patients, and I have suggested using the effect of a diuretic drug to separate patients into these two groups.<sup>89</sup> I have found that where oedema is chiefly of renal origin, diuretic drugs have very little effect in increasing urine output, while in the other group, if the cardiovascular mechanism is capable of response to digitalis or other therapy, diuretic drugs produce a striking, prompt increase in urine output. It may be well to give some further examples of these effects.

Case 1, P.B.B.H. Med. No. 4776, male, age 58, with a history of chronic nephritis, showed ascites and marked oedema of the legs. His heart was not enlarged, and there was no evidence of myocardial disturbance. His systolic blood pressure was 140, diastolic 90. His urine contained a large amount of albumen and many hyaline and finely granular casts. On June 7th, his phthalein excretion was 34 per cent. in two hours, his blood urea nitrogen 23.3mgm. per 100cc., and his McLean index of urea excretion was 10.7 per cent. On June 11th he received 3 doses of 0.2 gm. of theocin at 6, 9 and 12 o'clock,

which increased his urine output from 540 cc. to 740 cc., but did not produce a positive diuresis. Two days later his 'phthalein was 29 per cent., his blood urea nitrogen was 24.23 mgm. per 100 cc., and his index of urea excretion was 25.1 per cent. On June 14th and 15th digitalis was given, a total of 0.6 gm. of powdered leaves, and on the 16th, 3 doses of 0.3 gm. of theocin at 9, 6 and 12 o'clock. This combination produced a somewhat greater, but still relatively slight, diuresis. On the day prior to the first theocin dosage to the day following the second the weight of the patient was unchanged, 86.6 kilos, showing that no actual loss of œdema was produced. This patient had œdema of renal origin, and there was no diuretic response.

Case II, P.B.B.H. Med. No. 5004, male, age 59, with a history of chronic nephritis, showed marked œdema of the legs. His heart was moderately enlarged, but there was no evidence of myocardial disturbance. His systolic blood pressure was 240, diastolic 120. There was a marked degree of albuminuric retinitis. His urine showed a trace of albumen and frequent hyaline and granular casts. On July 21st his 'phthalein excretion was 35 per cent. in two hours. On July 25th his blood urea nitrogen was 20 mgm. per 100 cc., and the McLean index of urea excretion was 31.2 per cent. On July 26th he received 0.2 gm. of theocin at 6, 9 and 12 o'clock, which did not increase his urine above the usual daily average, which had shown a moderate diuresis since admission. On July 27th his blood urea nitrogen was 21.6 mgm. and his index of excretion 25.5 per cent. During 25 days' stay in the hospital, his œdema almost entirely disappeared, his weight dropping from 95.6 kilos to 78.2 kilos. Except for the diuretic on a single day, his treatment consisted in restriction of fluid and a diet relatively low in proteid and salt. Like Case I, this patient's œdema was of renal origin.

Case III, P.B.B.H. Med. No. 5239, female, age 55, has had dyspnoea and swelling of the legs for some time. When seen in the hospital she had ascites and œdema of the legs. Her heart was enlarged and irregular. Her systolic blood pressure was 180, diastolic 120. She had pulsus alternans, ectopic beats and disturbance in the ventricular complex, indicating faulty conduction in the distribution of the right branch of His bundle. Her urine contained a trace of albumen and frequent hyaline casts. On September 3rd her 'phthalein was 40 per cent. in two hours. On September 5th her blood urea nitrogen was 13.6 mgm. per 100 cc., and the McLean index of urea excretion was

67.2 per cent. On September 9th she got 0.2 gm. theocin at 6 and 9 a.m. and 6.30 p.m., which increased her urine output from 1,000 cc. to 3,350 cc. Her weight decreased from 83.2 kilos on September 3rd to 71.4 kilos on September 10th. On September 12th her blood urea nitrogen was 9.79 mgm. per 100 cc., and her index of excretion 85 per cent. On September 13th, theocin 0.2 gm. at 6, 9 and 12 was again given, with a urine increase from 200 cc. to 1,600 cc. and a further decrease in weight to 69.6 kilos on September 14th. On September 14th the blood urea nitrogen was 11.18 mgm. per 100 cc., with an index of 33.5 per cent. Theocin was repeated in the same dose on September 21st with a similar, though not quite so great, diuresis. On September 23rd the 'phthalein excretion was 40 per cent. in two hours. On October 1st her weight was 60.2 kilos. On October 3rd theocin 0.2 gm. at 6, 9 and 12 increased the urine output from 750 cc. to 1,900 cc. On October 4th the blood urea nitrogen was 9.23 mgm. per 100 cc., and the index of urea excretion was 97.5 per cent. On October 8th the patient's weight had fallen to 51 kilos from an admission weight of 83.2 kilos, and she left the hospital without oedema, and her urine contained a very slight trace of albumen and a rare hyaline cast. Here the oedema was essentially circulatory in origin. With slight renal involvement the kidneys have responded quickly to theocin by an active diuresis.

Case IV, P.B.B.H. Med. No. 4727, male, age 35, has had oedema of the legs and feet and an increasing dyspnoea. When he came to the hospital there was very little obvious oedema. His heart was enlarged with physical signs of a mitral stenosis and insufficiency. Its rate was absolutely irregular and the electrocardiograms showed a typical auricular fibrillation. His blood pressure was 244 systolic and 170 diastolic. His urine contained a very large trace of albumen and many hyaline and finely granular casts. On May 25th his 'phthalein elimination was 49 per cent. in two hours; his blood urea nitrogen was 13.9 mgm. per 100 cc. and the McLean index of urea excretion 34.8 per cent. His weight was 52.6 kilos. On June 24th his 'phthalein excretion was 58 per cent. in two hours. On June 28th his blood urea nitrogen was 17.4 mgm. per 100 cc. and his index of urea excretion was 90.5 per cent. In the hospital oedema gradually appeared and increased so that his weight on July 9th was 63.2 kilos. On July 26th his weight was 62.4 kilos, his blood urea nitrogen was 23.3 mgm. per 100 cc. and his index of urea excretion 29 per cent. On

July 27th he was given 0.2 gm. of theocin at 6, 9 and 12 and his urine increased from 700 cc. on the 26th to 5,000 cc. on the 27th. On the 28th he weighed 57.2 kilos, his blood urea nitrogen was 18.6 mgm. per 100 cc. and his index of urea excretion was 48.5 per cent. On August 1st a repetition of the theocin dosage increased his urine output from 500 cc. to 2,500 cc. A month later his condition was much less good, the cardiac insufficiency having become more marked. At 8 p.m. on August 19th he was given 0.2 gm. theocin and theocin was repeated in a dose of 0.4 gm. the next morning at 8. No diuresis resulted from this dosage. On August 23rd the patient died apparently a cardiac death. In this patient the prime cause of the oedema was cardiac. There was a moderate degree of renal lesion. While the cardiac condition was intact enough to give a circulatory response theocin produced a prompt and active diuresis. Later on when the circulatory condition was not so good theocin failed to produce any diuresis.

Case V, P.B.B.H. Med. No. 4992, male, age 58, has had dyspnoea and oedema of the legs for six months. When he came to the hospital he had considerable oedema of the legs. His heart was enlarged and he had the signs of aortic insufficiency. There was no cardiac arrhythmia. His blood pressure was 180 systolic, 70 diastolic. His urine contained a trace of albumen and occasional granular and hyaline casts. The general impression given was that of cardiac insufficiency with slight renal involvement. However, his 'phthalein excretion on July 19th was only 10 per cent in 3½ hours. On July 20th his blood urea nitrogen was 39.8 mgm. per 100 cc. and the McLean index of excretion was 1.34 per cent. On July 23rd his 'phthalein excretion was 15 per cent. in 2 hours. These tests indicated extensive renal lesion. A course of digitalis of 0.9 gm. of powdered leaves gave no diuresis. On July 24th while still under small doses of digitalis (0.05 gm. twice a day) theocin was given in 0.2 gm. doses at 6, 9 and 12. This increased the urine output from 600 cc. to 1,500 cc. This moderate diuresis again pointed to a renal rather than circulatory cause of the oedema. On July 26th the blood urea nitrogen was 36.5 mgm. per 100 cc. and the index of urea excretion was 2.25 per cent. This patient died August 29th, and autopsy showed aortic insufficiency with cardiac hypertrophy. The kidneys showed extensive nephritis with quite marked changes in the glomeruli. These autopsy findings

were in accord with the results of tests of renal function, and the failure to respond well to theocin, which indicated extensive renal damage with renal insufficiency as a prominent factor in the cause of the œdema.

These few cases illustrate what we have repeatedly seen in observing our patients. They justify the conclusion that when œdema is in very large part due to renal insufficiency a diuretic such as theocin is ineffectual to remove the fluid. Really it should be said that a diuretic drug such as theocin is effectual in increasing urine output in cardiac insufficiency but not in chronic nephritis. Perhaps in some patients with renal œdema without circulatory disturbances theocin will produce a diuresis; so far I have not seen such a patient.

What I have just said of theocin applies too to theobromin sodium salicylate, caffein and potassium acetate, as I have shown elsewhere. The only difference is that in my experience theocin is more effectual than these others in producing a diuresis. I have seen patients for example in whom theocin produced a marked diuresis after and before theobromin sodium salicylate had been used with much less effect. In a patient with aortic stenosis and marked œdema theocin increased the urine output from 800 cc. to 4,700 cc. Two days later theobromin sodium salicylate gave no diuresis. Six days after the first course of theobromin sodium salicylate a second course failed to produce a diuresis. Two days after the second failure from the theobromin sodium salicylate theocin increased the urine output from 900 cc. to 3,700 cc., showing that the kidney was still capable of response. That this difference was not the result of failure of absorption on the part of the theobromin sodium salicylate was shown by giving each later intravenously when the same difference was observed.

Unfortunately theocin is very apt to produce nausea, and this, if for no other reason, renders continuous use undesirable. The nauseating effect seems in large part to be central, and is not avoided by intravenous use of the drug in my experience with a few cases. In the patient just referred to intravenous administration of theocin produced nausea.

In patients in whom I have quantitated sodium chloride and nitrogen output theocin when it produces diuresis increases their output relatively proportionately to the increase in water excretion.<sup>1</sup> Sometimes, however, the sodium chloride output is increased more than that of nitrogen, and occasionally solids are excreted more than would be regarded as an amount pro-

portionate to the increased output of urine. This occurs most often in patients with œdema of circulatory origin, but there is a question as to how much good is done by removal of these solids considered apart from the removal of fluid.

What I have already said in regard to excretion of solids in acute nephritis applies in chronic nephritis. The chronic nephritis case who typically shows toxic symptoms is the chronic nephritis with little or no œdema. In a previous paper<sup>5</sup> I have shown that in 100 consecutive cases of chronic nephritis with little or no œdema, so-called diuretic drugs failed very generally to produce a diuresis. In such a toxic patient at this stage of the process in my experience diuretics rarely increase urine output. Even if they did increase the urine we have little evidence that such increased output is at all effectual in detoxifying the patient. Bleeding is a prompter and more efficient method of removing toxic substances. As a means of treating uremia diuretic drugs in my opinion are of very little use. Such patients often have a good urine output; at other times the amount of urine grows very scant. Each type is very little affected by diuretic drugs.

If I were to attempt to sum my views as to the use of diuretic drugs in nephritis I would say that in uncomplicated nephritis of all types diuretics are either not indicated because there is no need for increased urinary output, or where there is a need for diuresis to remove œdema or detoxify, they do no good. In other words, in nephritis as such they should not be used. Reduction of fluid intake, salt—poor diet, sweating and purging are better methods for removing œdema. For toxic symptoms bleeding, sweating and purging are more efficacious than diuretic drugs. On the other hand in patients with cardiac insufficiency and relatively little organic renal lesion diuretics are extremely useful to aid in the removal of fluid accumulated in the body. Under these conditions they seem to work best when given intermittently in part because of their tendency to cause nausea, and in part because study of renal function indicates that frequently following very active diuresis renal function is temporarily depressed. They are most efficient when given after a short period of digitalis therapy. In the patient with œdema of nephritic origin without cardiac insufficiency digitalis alone, however, in my experience produces no diuresis, and when followed by a diuretic drug little or no increased urine flow results.

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Dr. M. B. White has been appointed Director of Medical Services in Toronto, and is now engaged upon the organization of his work, so that it will include the medical inspection of schools, which was transferred to the Medical Officer of Health's department last April from the Board of Education. Doctor White was formerly Superintendent of the Isolation Hospital, but now enters a much wider field, including responsibility for the Isolation Hospital, the school children and the various clinics maintained by Doctor Hastings' department.

**CHRISTIAN SCIENCE AND ITS CLAIMS**

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BY JOHN FERGUSON, M.A., M.D., TORONTO.

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So long as any religious belief adheres to its own province, and only seeks to propagate its religious views, it may well be left to other religious bodies to deal with it and examine into its merits or defects. In the case of Christian Science, it sets itself up to be both a system of religion and also a new and wonderful system for the healing of disease. This latter claim brings it within the proper range of the medical profession to look into its teachings and set forth its worthlessness before the people.

For a moment let us look into Mrs. Eddy's claims as to how she received her so-called discovery. On page 55, at line 27, of "Science and Health," we are told that: "In the words of St. John, 'He shall give you another Comforter, that he may abide with you forever.' This Comforter I understand to be Divine Science." Now it is admitted that "Science and Health" is the text-book of Christian Scientists, and it is Mrs. Eddy's chief writing. In the quotation just given it will be noted that Mrs. Eddy was not at all modest in her claim, for "Divine Science" she held to be "this Comforter" spoken of in St. John.

But we must here clear away any chance of confusion on the matter of Mrs. Eddy's terms. If we turn to page 127 and line 9 of the edition of "Science and Health" for 1917, we find this: "The terms Divine Science, Spiritual Science, Christ Science or Christian Science, or Science alone, she employs interchangeably, according to the requirements of the context." This makes it perfectly clear that when Mrs. Eddy speaks of Divine Science she means the same thing as Christian Science, and she tells us that this is the Comforter mentioned in St. John.

On page 107, at line 1, we are told this: "In the year 1866 I discovered the Christ Science or divine laws of Life, Truth and Love, and named my discovery Christian Science. God had been graciously preparing me during many years for the reception of this final revelation of the absolute divine principle of scientific mental healing." Here one is treated to the contradiction that she discovered Christian Science in 1866, and also that it was a revelation to her for the reception of which she had been specially prepared. If one grants the second view, it becomes quite apparent that Mrs. Eddy claimed to have got it from God.

But turn to page 110 and line 17 for further proof of Mrs.

Eddy's pretensions. "No human pen nor tongue taught me the Science contained in this book, 'Science and Health,' and neither tongue nor pen can overthrow it." This is just as definite a claim to a supernatural origin for her book as one could make. It remains to be seen whether the people are ready to grant such a preposterous assumption.

But, again, this is laid down in the most definite terms on page 134 at line 21. "The true logos is demonstrably Christian Science, the natural law of harmony which overcomes discord—not because this Science is supernatural or preternatural, nor because it is an infraction of divine law, but because it is the immutable law of God." There could be nothing more definite than the foregoing, in which she contends that her book contains "the immutable law of God," and is a veritable Bible.

On page 559 of "Science and Health," one finds Mrs. Eddy's views regarding the book in the hands of the angel seen by St. John. It is absolutely plain from the reading of this page that the little book in the angel's hands was Divine Science, and Divine Science is the same as Christian Science. Note what she says: "Did this same book contain the revelation of Divine Science?" and further, "Mortals, obey the heavenly evangel. Take Divine Science. Read this book from beginning to end."

If one turns to page 662 and line 1, this astounding statement is found: "And John saw in those days the Spiritual idea as the Messiah, who would baptize with the Holy Ghost—the Divine Science." So it becomes manifest that Mrs. Eddy's Divine Science or Christian Science is the Holy Ghost. There are very few, indeed, who could be induced to accept such a pretension on her part, namely, that Christian Science is the Holy Ghost.

One of the boldest of Mrs. Eddy's claims for Christian Science is to be found on page 412 at line 13. "The power of Christian Science and Divine Love is omnipotent. It is indeed adequate to unclasp the hold and to destroy disease, sin and death." So we are told that Christian Science is omnipotent, and has power to destroy disease, sin and death. If one turns to John 1: 29 this will be found: "Behold, the Lamb of God, which taketh away the sin of the world." This quite decidedly takes the power to destroy sin out of the hands of Mrs. Eddy and her book.

On page 588, at line 7, we meet with the definition Mrs. Eddy gives for the Holy Ghost as the same as Divine Science, which with her is the same as Christian Science. This, one should think, would be enough to condemn her teachings to utter oblivion.

But one more instance of her unwarranted assumption is to be found on page 575 at line 7. She is speaking of the Sacred City

mentioned by St. John in Revelation 21: 16, and puts forward the claim that Christian Science is one of the sides of the City. This same contention is again advanced on page 577, at line 12. Her words are: "The four sides of our city are the Word, Christ, Christianity and Divine Science."

On page 147, at line 24, will be found one of Mrs. Eddy's wildest claims. Here it is: "Our Master healed the sick, practised Christian healing, and taught the generalities of its divine principle to his students; but He left no definite rule for demonstrating this principle of healing and preventing disease. This rule remained to be discovered in Christian Science." Thus Mrs. Eddy makes herself to be a greater person than Christ. She completed what He had left incomplete. She has given us the "rule" where He only laid down the "generalities." To propagate the teachings of this very Mrs. Eddy, there are those who build churches in her honor.

In the preface to "Science and Health" written by Mrs. Eddy, she tells that her first pamphlet was written and copyrighted in 1870. Just think of it! A revelation to her of what she said was a great truth was copyrighted for purely commercial reasons. We find also on one of the title pages that it was copyrighted by Mary Baker G. Eddy in 1890, 1894, 1901, 1902, 1906. This should be ample to send this disgusting book to the rubbish heap for destruction.

A few days ago Judge Clifford P. Smith, of Boston, in advocating the case of Christian Scientists before Mr. Justice Hodgins, in effect spoke as follows: "It is not true that Christian Science is chiefly a system for the cure of disease. The cure of disease enters into its practice to the same extent and for the same reason that the cure of disease entered into the original practice of the Christian religion. Christian Science is simply the restoration of the teaching and practise of pure Christianity. It is not true that Christian Science contributes to the spread of disease, nor is it true that Christian Science induces or countenances the ignoring of disease."

Now, this statement is open to attack and complete refutation. On the question of Christian Science being mainly for the cure of disease we prefer to take Mrs. Eddy to Judge Smith. On page viii, at line 12, of Mrs. Eddy's preface, we find this, "The question, What is truth, is answered by demonstration—by healing both disease and sin; and this demonstration shows that Christian healing confers the most health and makes the best men." Then on page 109, line 6: "This great fact is not, however, seen to be sup-

ported by sensible evidence until its divine principle is demonstrated by healing the sick and thus proved absolute and divine." So it is at once made evident that Mrs. Eddy's discovery could not meet with acceptance until she began to heal people. The healing takes the lead over the religious feature of her system. The very reverse of this was Christ's teaching. But if Judge Smith is correct that Christian Science is the practise of pure Christianity, then Mrs. Eddy was wrong when she said she made a new discovery and received a revelation regarding Christian Science. Both cannot be right.

The other statement of Judge Smith about the spread and ignoring of disease is easily answered. On page 330, lines 25 to 33, we read that nothing is real, including dementia and insanity. On page 393, at line 29, Mrs. Eddy gives us this illuminating statement: "Man is never sick, for mind is not sick and matter cannot be." Also on page 395, at line 21, we learn that "it is mental quackery to make disease a reality; it is no less erroneous to believe in the real existence of a tumor, a cancer or decayed lungs, etc." On page 411, at line 20, we are informed by Mrs. Eddy regarding the causes of disease. She tells us that "the procuring cause and foundation of all sickness is fear, ignorance, or sin." She then goes on to state that "disease is an image of thought externalized." But on page 417 and line 20 she tells us this: "To the Christian Science healer, sickness is a dream from which the patient needs to be awaked." Then, again, on page 475 and line 28, Mrs. Eddy declares that "man is incapable of sin, sickness and death." On page 482 at line 26, there is a paragraph again declaring for the unreality of disease; or that it is only an error of mortal mind. On page 584, at line 9, we have this: "Death, an illusion, the lie of life in matter, etc."

These quotations could be multiplied indefinitely; but those selected are ample to prove that Mrs. Eddy regarded disease and death as mere delusions or errors of mortal mind. This is certainly ignoring disease, and to ignore disease is to cause its spread.

We were told by those arguing in behalf of the Christian Scientists that "Christian Science is directly opposed to 'suggestion' in any form." It is quite true that Mrs. Eddy declared that her system of healing had no connection with suggestion, but this does not go very far by way of proof, as Mrs. Eddy was ever ready to declare almost anything to further her own ends. She claimed that her system of healing was due to bringing the human mind into such perfect accord with the divine mind that disease could not exist. Now, let us see what Mrs. Eddy really does say about

prayer. Here are some of her statements: "The mere habit of pleading with the divine Mind, as one pleads with a human being, perpetuates the belief in God as humanly circumscribed." "God is not moved by the breath of praise to do more than he has already done." "Asking God to be God is a vain repetition." "The only acceptable prayer is to put the finger on the lips and remember our blessings." "We reach the Science of Christianity through demonstration of the divine nature." "God is not influenced by man." "The 'divine ear' is not an auditory nerve." "The common custom of praying for the recovery of the sick finds help in blind belief, whereas help should come from the enlightened understanding." "The highest prayer is not one of faith merely; it is demonstration."

These few quotations from Mrs. Eddy's chapter on Prayer clearly reveal her viewpoint, and reduce the whole question to one of cold mental suggestion. How could it be otherwise when Mrs. Eddy says: "God is not a person who can say 'I' or be addressed as 'Thou.'"

But again we prefer to take what Mrs. Eddy has to say about "Suggestion," to what Judge Clifford P. Smith or I. F. Hellmuth, K.C., are pleased to tell us. Here it is, from page 154, line 28: "Such a mother runs to her little one who thinks she has hurt herself by falling on the carpet, and says, moaning more childishly than her child, 'Mamma knows you are hurt.' The better and more successful method for any mother to adopt is to say: 'Oh, never mind! You're not hurt, so don't think you are.' Presently the child forgets all about the accident, and is at play." Is this prayer or suggestion? Perhaps Judge Smith could tell us which.

If one will take the trouble to read "Science and Health" he must come to the conclusion that it is not such a system as would win the favor of God. A pretended revelation founded on falsehood, a method of healing formulated by another and stolen by her, a grossly greedy and mercenary method of propagating her views, and the so-called divine message for the saving of mankind copyrighted for gain, is not a religious and healing gospel that will derive strength from God's co-operation. It must, therefore, owe its influence to suggestion alone, as Mrs. Eddy discards all drugs.

Then, again, they took the stand that Christian Science did not ignore disease or countenanced the spread of disease. This brings one to the *reductio ad absurdum*. All through Mrs. Eddy's writings disease is regarded as unreal and only the product of the error of mortal mind. She says that mind is never sick and matter cannot be. Any knowledge of anatomy, hygiene, or medicine would

only have the effect of spreading disease. With such views there would be no check upon contagion and, therefore, there would be a rapid spread of disease. This is the deplorable position Mrs. Eddy's extreme idealism lands herself and her followers in.

Judge Smith occupied a good deal of time to prove that the medical profession often made mistakes in diagnosis, and quoted some figures from Doctor Cabot, of Boston. He deduced from this the remarkable conclusion that doctors should not be granted too extensive privileges, and that as they made mistakes, Christian Scientists should be left alone. This argument is fatal to his own case, and goes to show that a higher and severer standard is called for, and not such as is adopted by the Christian Scientists, who deny all disease and contend that hygiene only spreads sickness. Such a theory as that put forward would be destructive of all progress. That there are imperfections in medical science and that mistakes are made in the application of what is known regarding disease are no justifications for throwing open the doors to permit those to practise who deliberately disclaim all knowledge of diseases, and state that any such knowledge would be a positive handicap to them.

This is the system of treatment that is now seeking to be left alone to treat sick people by prayers, or by the bringing of the human mind and the divine mind into such perfect harmony that disease cannot exist; and note, all this is done under the system set out in her book which Mrs. Eddy copyrighted 1870. Such teachings do ignore disease and would lead to its spread.

In Mrs. Eddy's system there is no anatomy, no physiology, no hygiene, no therapeutics. Just mental treatment, or mind-cure; call it prayer if you will. The case may be one of smallpox, or cholera, or the plague, or diphtheria, or pneumonia, or peritonitis, or anything else, but it is all the same. Read Christian Science, argue with the disease, and tell it to go, and it goes.

For a masterpiece in the way of trying to show that disease is nothing, let us quote the following from page 153, line 16: "You say a boil is painful; but that is impossible, for matter without mind is not painful. The boil simply manifests, through inflammation and swelling, a belief in pain, and this belief is called a boil. Now administer mentally to your patient a high attenuation of truth, and it will soon cure the boil."

A few words now on Mrs. Eddy's life. As a young woman she was attractive and was regarded as the belle of Tilton. What she could not secure through her usual endowments she sought to gain by an imperious manner and the manifestation of her neurotic temperament. At the age of twenty-two she married Glover, who

died six months later, but she never marked his grave in any way. This act to his memory was after many years performed by others. Her son, born some time after Glover's death, was reared and cared for by others, and she rarely ever saw him and took no interest in him.

She then drifted about among friends and acquaintances, wearing out her welcome and causing trouble in the homes of those who took her in. At the age of thirty-two she married a second time, Dr. D. Patterson, a dentist. This was destined to be unhappy, and twenty years later she secured a divorce. During these years she was again an itinerant among her acquaintances, and true to her former reputation causing trouble in homes where she was staying. All these years she was reading and advocating spiritualism, mesmerism, and hypnotism, and praising the wonders of these things to all who came her way. In 1862, as a nervous wreck, she became the patient and pupil of Dr. P. P. Guimby. She made a sudden recovery, which stamps the case as a neurosis.

In 1866 she fell on the pavement, and thought she was dangerously ill, but her medical attendant did not think so. She again made a sudden recovery, which proves another attack of neurosis. In 1870 she formed a partnership with Richard Kennedy, who was a successful "healer," and the two made money, and in a short time Mrs. Eddy had six thousand dollars in her bank account. She turned on Kennedy, as on all her friends, and hounded him afterwards. She then added to her income by teaching pupils. At this time her teaching was a sort of mind cure or suggestion treatment.

Kennedy gone, she took up with Mr. Spofford, who was a successful teacher of the system. As usual, she had trouble with him. It was this Mr. Spofford who introduced to her Mr. Eddy, whom she married in 1877, giving her age as forty, though she was fifty-six. She called Eddy a perfect man. When he died of heart disease, she maintained he had been poisoned by arsenic mentally administered. Her book was now beginning to sell, and she had more pupils. Her day to make money had come. This is the woman her followers build churches in honor of and to the study of whose writings they give up their time.

We have now given Mrs. Eddy's own account of how she came by Christian Science, and it must be admitted that it stands condemned as the product of one of the most notorious of frauds that ever lived, or of one who was mentally unbalanced. Her philosophy is not a discovery, for it is merely an ignorant jumble of idealism. Her religion is neither a discovery nor a revelation, for it is a disgusting misrepresentation of the teachings of Christ. Her healing of disease is only the absurd view that as matter is unreal there can be no disease, for that which does not exist cannot be ill.

# Dominion Medical Monthly

And Ontario Medical Journal

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all Communications and make all Cheques, Post Office Orders and Postal  
Notes payable to the Publisher, GEORGE ELLIOTT, 219 Spadina Road,  
Toronto, Canada.

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Vol. XLIX.

TORONTO, AUGUST, 1917

No. 2

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## COMMENT FROM MONTH TO MONTH

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**Public Opinion**, or public sentiment, is the faith in a project, or reform, which unites and impels people forward until that project or reform is accomplished. Governments wait on public opinion until it is ripe, and then, feeling they have a public sentiment behind them, do things; failing it, not much can be accomplished. Public opinion, then, is the driving force, and lies behind, and is far more important than, the mere placing of laws on the statute books. It is the dynamics of all democracies.

Behind public sentiment, however, lies the greatest force in any community, far more important, according to Mr. Edmund Burke, than Senates, Parliaments, Houses of Commons, or Governments—the press. The press is the great shoulder of thought and public opinion. The member of parliament, the clergyman, the medical man, the schoolmaster, may, in a small sphere, contribute a modicum in creating a wholesome and united public sentiment; but the press has the wide constituency—and many individuals almost swear by their favorite newspaper. What a tremendous moral and patriotic responsibility rests upon the news-

paper press at all times, but particularly so in unprecedented times like the present!

But a few days ago and Canada commanded the eyes of the whole civilized world—if the newspaper clippings and quotations from foreign, United States (it would be discourteous now to apply “foreign” to that country) and home-land papers are to be credited. It was not because of any newspaper propaganda we had carried on, advertising our lands, our resources and our industrial wares, which might have been clipped out and reproduced in foreign newspapers. It was not because we had waved our national ensign or blown our own horn along the public highways of other climes. Nor was it due to our vast extent of territory, eighteen times greater than Germany, that outcast amongst nations, and thirty times greater than the United Kingdom, the marvel, the admired, the trusted nation amongst the commonwealths of mankind. Nor is it due to our rapid expansion in business, mining, agricultural and industrial pursuits, tapping and helping to supply the markets of the Occident and the Orient; nor to our extensive construction work; nor to the enormous influx of capital; nor to our unprecedented immigration which no land in its formative period ever before equalled. Nor is it that some of Canada’s sons, keen-eyed, agile, brawny, did, as of yore, go forth and prove their superiority as marksmen, as runners and as oarsmen. But it is because truest Canadians did and died on foreign battlefields, proving their patriotism, demonstrating their love of freedom, and overcoming and conquering the near-perfect, the greatest, the mightiest enginery of war the world has ever known. There is an old and well-known aphorism, “The pen is mightier than the sword.” It must needs look to its laurels. No pen could ever have put Canada so completely on the map of civilization as did the sword of justice in the hands of her brave and gallant sons. From their baptism of fire in the second battle of Ypres, on through St. Julien, Courcelette, *et al*, until they reached Vimy Ridge, they have gained for themselves a priceless renown and placed their country under an eternal obligation. Other intrepid and valorous British soldiers essayed Vimy Ridge unsuccessfully. France, almost mor-

tally wounded France, sent her daring and dashing men against it in vain. Canadians took Vimy Ridge. From that shell-torn hill-side the souls of the living and the dead summon us. Shall we turn our backs on them and go our way rejoicing in their hallowed achievements?

Put your finger, oh mighty man of the press! upon the pulse of the people, and as you count its beat and volume, ask yourself the question: Have you put forth your last best effort to unite the great power of the press; to stimulate an united people to give an united support to the government of the day in prosecuting our part of this great war so that it may be brought to a speedy and successful conclusion?

Leadership! Why, you, yourself, constitute great leadership. You of the press are so powerful that you could put one-half your forces in the van, leading on, and the other half in the rear, pushing on. What a spectacle it would be, an united press! Man, the mere instrument of your power, would soon be evolved to obey your will. "Your king and country need you now."

---

Right Hon. Walter Long, Colonial Secretary, opened on July 5th, the new extension of the Ontario Military Hospital, the capacity of which is now doubled, with accommodation for 2,800 beds.

Among those present were Sir George Perley, Canadian Overseas Minister of Militia, and the Agents-General of Ontario, Quebec and Nova Scotia, also General Sir Richard Turner.

In the course of his speech, Mr. Long said that this gift was only one more proof of what had been done in similar directions since the war began. He remarked that the world looked on and wondered at the present spectacle of unity of the Empire. Things would never be the same after the war, he said. All had felt it was almost inevitable that some such great test as war would come to enable the Empire to find itself, so to speak. The test had come and had been surmounted.

**UNITED FOR MEDICAL SERVICE**

At a special meeting of the Academy of Medicine, Toronto, July 10th, the following resolution was unanimously adopted:

"Whereas it has always been the custom to have wounded and invalidated soldiers retained under military regulations until discharged, and treated professionally by physicians and surgeons responsible only to the military authorities; and whereas in Canada a plan has been followed whereby wounded and invalidated soldiers are placed under the professional care of physicians and surgeons, who are made responsible to a civilian Commission; and whereas the hospitals for the care of returned wounded and invalidated soldiers, instead of being under the control of the Militia Department, have been placed under the control of the Military Hospitals Commission; and whereas up to the present the Commission have not assumed full control of these hospitals inasmuch as the medical care of patients is still, to a large extent, under medical officers responsible in part to the military authorities and in part to the Military Hospitals Commission, there exists a state of dual control which is eminently unsatisfactory, and does not ensure provision of the best treatment available for the soldiers;

**A UNITED MEDICAL SERVICE.**

"Therefore be it resolved, and it is hereby resolved, that in the opinion of the Academy of Medicine, Toronto, there should be one united medical service in Canada, and that the medical care of all soldiers, invalided or otherwise, should be placed directly under a Surgeon-General, to be known as Surgeon-General of Canada, with direct responsibility to the Honorable the Minister of Militia, and with a seat on the Militia Council; further, that the Surgeon-General of Canada should absorb the duties of Director of Medical Services, Invalids, and be chief medical officer of the Military Hospitals Commission, and be ex-officio a member of the Military Hospitals Commission and of its Executive; further, that Surgeon-General Fotheringham, who has been recalled from overseas to become Director of Medical Services, Invalids, should be appointed forthwith as Acting Surgeon-General of Canada; further, that the views expressed by Surgeon-General Fotheringham in his evidence before the Parliamentary Committee on Returned Soldiers at its sitting on June 12th, 1917, are generally endorsed."

**CANADIAN PUBLIC HEALTH ASSOCIATION**

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Official Organ: *Public Health Journal*, Toronto.

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Office of the General Secretary,  
University of Toronto,  
TORONTO, ONT., July 16th, 1917.

*Dear Doctor,*—The Sixth Annual Congress of the Canadian Public Health Association is to be held in Ottawa on September 27th and 28th next. The Canadian Association for the Prevention of Tuberculosis will meet at the same place on September 26th. Furthermore, the Canadian Conference on Charities and Correction meets in Ottawa also during the early part of the same week.

This preliminary announcement is intended to arouse your interest and to invite your attendance at the meeting. The C.P.H.A. will discuss two or three very important questions. The subject of National Health Insurance will for the first time in Canada be adequately dealt with. Foremost authorities on the continent will participate in the symposium on this subject, which will take place on the first afternoon.

Further, venereal diseases in their military and civilian public health aspects are to be dealt with. This is a subject of the utmost importance. The questions of infant welfare, child hygiene, etc., are also to receive attention. A separate section meeting of laboratory workers is also being arranged.

Special railway rates from all points east of Fort William have been obtained from the Eastern Canadian Passenger Association, fare and one-third, plus twenty-five cents on the certificate plan.

Please mark these dates, September 27th and 28th, on your desk calendar pad; arrange to be in Ottawa and attend these meetings. Let the public health workers in Canada show by the size of their sixth annual meeting and the importance of their contri-

butions that they are second to none in their interest in the welfare work of the Dominion of Canada.

Those who wish to contribute papers should submit titles and also the length of time required to read the paper to the General Secretary, not later than August 15th next.

Full programme and announcements will be mailed before September 1st.

May we count at least on your being present? Canada was never in greater need of unity in regard to public health matters.

Faithfully yours,

J. G. FITZGERALD,  
*General Secretary.*

---

THE NUTRITIONAL VALUE OF THE BANANA.—The question as to whether the "poor man's fruit," as the common banana is aptly called, is fit for consumption by young children and whether it is of real or only advertised value as a highly efficient food is an oft debated topic. *The Journal of the American Medical Association* in a recent issue publishes a paper from the hands of Dr. Myers and Dr. Rose, and the conclusions reached by these two observers after an extended series of experiments, are a help towards judgment in the matter. They find the banana to be the most useful of all fruits by reason of its high caloric value, its cheapness, the readiness with which it may be obtained, and not least, the fact that the thick skin provides a competent sanitary covering. In the diet of nephritis patients the banana is of great service, for the retention of nitrogen by these patients is in some measure counteracted by the fact that the fruit contains small fractions of protein and a large fraction of the more readily assimilable carbohydrates. Practically all adverse opinions as to the merits of the banana are due to the fact that it is too often sold and consumed before thoroughly ripe. The fruit and its peel yield an alkaline ash, and are thus accredited opponents to the developments of acidosis. Its mineral constituents entitle it to be ranked as a possible substitute for the now eagerly sought potato.—*Medical Press and Circular.*

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## Reviews

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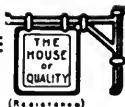
*Diseases of the Stomach, Intestines and Pancreas.* By ROBERT COLEMAN KEMP, M.D., Professor of Gastro-intestinal Diseases at the Fordham University Medical School. Third edition, revised and enlarged. Octavo of 1,096 pages, with 438 illustrations. Philadelphia and London: W. B. Saunders Company. 1917. Canadian Agents: The J. F. Hartz Co., Toronto, Canada. Cloth, \$7.00 net; half morocco, \$8.50 net.

Possibly the most outstanding feature of this new edition of Kemp on "Diseases of the Stomach" is the special section on X-rays on diseases of the gastro-intestinal tract, which includes a large and very fine production of illustrations. Experts in that department of medical science have contributed to this section a valuable experience of special work along those lines. Kemp's "Diseases of the Stomach" is a well-known book, and one which can be heartily recommended to our readers.

---

*Medical State Board Questions and Answers.* By R. MAX GOEPP, M.D., Professor of Clinical Medicine at the Philadelphia Polyclinic; Assistant Professor of Clinical Medicine, Jefferson Medical College. Fourth edition, thoroughly revised. Octavo volume of 724 pages. Philadelphia and London: W. B. Saunders Company. 1917. Canadian Agents: The J. F. Hartz Co., Limited, Toronto, Canada. Cloth, \$4.25 net.

Our own medical students will find "Medical State Board Questions and Answers" a book of practical worth around "grind" and examination time. This being the fourth edition (1917) insures up-to-date information. Any of our younger graduates—and many of them have done so in former years—who will go out to practice in the United States field, will find this book of eminent advantage to them. It has been carefully and thoroughly revised, with questions added of the later and more recent advances, thus bringing it abreast of the times.



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## News Items

Dr. Eddie Hodgson, Toronto, has gone overseas.

Colonel A. S. Shillington, Ottawa, is home on short leave of absence.

Dr. Oliver Mabee, Toronto, has been spending a holiday on the New Jersey coast.

Lieut.-Colonel D. King Smith, Toronto, has again returned home invalided with malaria.

Doctor Tanney, Montreal, has been appointed Superintendent of the Quebec City General Hospital.

Major Don. MacGillivray has arrived home in Toronto from Saloniki for three months' leave of absence.

Dr. J. H. Carson, Vancouver, B.C., is Medical Superintendent of the Langara Convalescent Hospital, B.C.

Capt. W. Gerald Cosbie, Toronto, has been awarded the Military Cross for conspicuous bravery at Vimy Ridge.

Lieut.-Colonel H. E. Kendall, Sydney, N.S., is now in command of the St. Francis Xavier Hospital at Bramshott.

Lieut.-Colonel D. McQueen, formerly Medical Superintendent of the Winnipeg General Hospital, has received the D.S.O.

The Military Cross has been awarded to Dr. Frank L. MacKinnon, Winnipeg, and to Dr. Frank M. Walker, Stoney Creek, Ontario.

Colonel Graham Chambers has completely recovered from a prolonged illness and is now doing hospital work at Moore Barracks, England.

Dr. Fred. Doherty, after several years spent in practice in British Columbia, has returned to his old love and home, Eglinton, North Toronto.

Major T. D. Archibald, Toronto, after being overseas a year, has returned and has been appointed medical officer of the Whitby Military Hospital.

Lieut.-Colonel T. B. Richardson, Toronto, was sent from Sudbury, where he was A.D.M.S., to New York, and after two days' residence in Gotham was ordered to Chicago, where he is now medical officer to the British War Mission.

Dr. Alf. Haywood, formerly Assistant Superintendent of the Toronto General Hospital, and who has been overseas for two and a half years, has been appointed Medical Superintendent of the Montreal General Hospital, and has assumed his duties.

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TREATMENT OF ACNE.—R. A. McDonnell (*Journal of Cutaneous Diseases*, February, 1917) states that acne vulgaris is caused principally by two factors: eating fermentable foods, and inability to prevent such foods from fermenting. Menstruation, cigarette smoking, anemia, etc., are factors in acne through their influence on digestion. The treatment consists in thorough mastication of the food, putting the teeth in good order, and excluding starches and sugar from the diet. Antifermentive drugs, such as aloin 0.1 gram, iehthyol 10 grains, liquorice powder q. s., to be mixed and divided into thirty capsules and one taken after meal, are of value. Sunlight and fresh air as well as exercise help a great deal. X-ray works in much the same way. Drying and peeling lotions help locally. Vaccination often controls the formation of pus in the lesions, but cannot, in the opinion of the author, cure acne vulgaris.—N.Y.M.J.

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TREATMENT OF HAY FEVER.—Notwithstanding the many "specifies" and "near-species" for hay fever that have been pushed forward in recent years, the disease, if not precisely enigmatical, continues to baffle and perplex. It is evident that no single therapeutic agent has arisen that can eliminate, or even modify, the symptoms in all cases. Individual sufferers present problems that are peculiar to themselves, and other than the vasomotor relaxation of the upper respiratory tract, which is common to all, there are no uniform underlying pathologic changes.

Fortunately there are some very satisfactory alleviants. The suprarenal substance, in the form of its isolated active principle, Adrenalin, is undoubtedly one of the best of these. Experienced practitioners say that in a large majority of cases it successfully controls the symptoms. Adrenalin Chloride Solution and Adrenalin Inhalant are the preparations commonly used, being sprayed into the nares and pharynx. The former should first be diluted with four to five times its volume of physiologic salt solution. The latter may be administered full strength or diluted with three to four times its volume of olive oil.

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**Note.**—Our directors are physicians, excepting business manager, who is a son of a physician director.

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# Dominion Medical Monthly

And Ontario Medical Journal

Vol. XLIX.

TORONTO, SEPTEMBER, 1917

No. 3

## Original Articles

### TYPHOID FEVER IN RURAL COMMUNITIES

BY S. F. MILLEN, M.D., M.O.H., SOUTH WOODSLEE, ONT.

*Mr. President and Fellow Health Officers,—*

In giving this paper on "Typhoid and the Rural Medical Officer of Health," I wish to say at the outset that it is my intention to keep to my subject as nearly as possible. I am not going to consider this subject from the urban standpoint whatever, but intend to discuss the problems that we are up against in the country, where there is no waterworks and no sewage system. Manifestly the question is a much harder problem here than in the city, typhoid fever being a disease carried from sewage by water and flies to quite a large extent at least, and these things in the country being in the hands of the individuals and not the corporation, it makes it hard to control and of supreme importance that those measures should be taken at the sick-bed that tend towards destroying bacilli before they are thrown out upon a community.

In the past, especially in the country, there has been no infectious disease towards which we as health officers or as practitioners have been so disdainful. I have had more cases of typhoid than of scarlet fever, diphtheria or smallpox. In the case of the latter we move heaven and earth, as it were, to prevent contagion, patients are absolutely isolated, a strict quarantine of exposed enforced, the cases reported and investigated if an epidemic occurs, ultimate disinfection carried out, and altogether a most vigorous campaign to prevent the spread is carried on, not only by the physician but by the community as well. No such thing happens when typhoid infection takes place, and the danger of typhoid spreading is really greater. It spreads by contact and by the improper disposal of the excreta, the others by contact alone. We should wake up in

this matter and at least carry out all the preventive measures at our command.

The mortality statistics show typhoid to be a serious and dangerous menace to rural populations. McRae, Osler, and Roseneau in his recent publication, all agree that the death rate from typhoid is higher in the country than in the city. They put it at 32 per 100,000 in the country and 25 per 100,000 in the cities. This is U. S. official report. They also state that there are 350,000 cases of typhoid in the United States each year, or about one person out of 400. When we consider that one attack of typhoid practically immunizes, and that a generation is forty years, we are forced to the conclusion that one-tenth of the population of the United States has at one time or another had the disease.

In Great Britain and European countries the death rate runs from 10 to 20 per 100,000. In Ontario there were 637 deaths in 1911, 446 in 1913, and 300 in 1915. Counting the population of Ontario 2,500,000, this would give us a rate of 25 in 1911, 18 in 1913, and 12 in 1915. These are better than the United States figures, and show a falling off of one-half in five years, but the reduction is not in the country. There were more deaths in the county of Essex than in the city of Toronto in 1915, and there were ten times as many people in Toronto as in Essex. Toronto has cut its rate from 40 to 2 per 100,000 in five years. Other cities have done nearly as well, but the country, alas! still has the same old figures of about 20 per 100,000.

In Ontario in 1915 there were 300 deaths, and calling the mortality rate of typhoid to be 10 per cent., 3,000 cases of typhoid. The economic loss of this is enormous, and from a patriotic standpoint, if from no other, everything possible should be done to lessen these figures.

In comparing the urban and rural statistics, one can hardly form a reasonable conclusion. The city cases come home sick from the country and the country cases go to the city hospital. I met Doctor Cruickshanks, the Health Officer of Windsor, one day last autumn. "Have you any cases of typhoid?" said I. "Only some cases sent in to the hospital from the country. Have you any?" he asked. "Yes," I replied, "some cases came down from Windsor last week." And that is the trouble. Each tries to lay his sins upon the other fellow, as it were.

These few statistics justify the Provincial Board in asking for a paper of this kind and for a full discussion on present methods in dealing with typhoid, in order that the death rate may be made as low as possible.

In preventing typhoid the first duty of a health officer is to remove the cause, and before he can do this he must first find it. The second duty is to prevent contact cases, and the third duty is to control the discharges to prevent future outbreaks. This covers the whole field, I think.

In my own practice, in twelve years I have come in contact with eighty cases of typhoid and have treated fifty of these cases personally. These eighty cases occurred in thirty homes and in four instances two cases occurred simultaneously. This would account for thirty-four. Of the remaining forty-six, about forty were contact cases and six occurred the year following. Of the forty contact cases, probably about one-half were not real contact cases, but being exposed to the original source of infection contracted the disease in this manner; so that of my cases one might truly say that sixty per cent. came from the original source, thirty per cent. from contact and ten per cent. from improper methods of disposing of the discharges or from a carrier.

Now, what caused the original sixty per cent. of the cases?

In 1914 in the township of Maidstone a slight epidemic of typhoid infected the residences of the Puce Creek valley. In two weeks' time six homes and ten cases of fever were reported. It seemed so serious that I called Doctor Bell, of the Provincial Board, to help investigate. These cases were on the same watershed, but on opposite sides of it, thus disposing of surface water as a source of infection from higher up. After careful enquiry we found one thing in common at all these homes. They were all using water taken from Lake St. Clair. Samples of water had been taken by the International Waterways Commission one mile off Puce, and colon bacilli had been found. This clinched the diagnosis, and I am satisfied that drinking of, bathing in, or using ice from the Great Lakes is highly dangerous at times. In reviewing my cases I find that this source alone has been the cause of thirty of my eighty cases during the last ten years. Thirty of these were original and ten were contact cases.

There are several millions of passengers and sailors go up the Great Lakes each year. All the sewage of these goes directly into the water, and typhoid bacilli lives in water from seven to twenty-three days and in ice for many months. Add to this the sewage from the large cities as above, and remember that water running four miles an hour will travel 675 miles in seven days, and one can easily see the danger existing from this source.

In 1910 I had a most peculiar outbreak. It occurred almost spontaneously in four homes. These homes were within a mile and

a half of a central point and were all on different watersheds and were all using good rock well water. They might have been coincidences, but it scarcely seems likely. I looked for a common cause, but at the time found none. They were all dealing at different stores and could hardly have got infected from vegetables or fruit or fish. My knowledge of carriers at that time was very limited, but since I came to the conclusion that these cases originated from a carrier who had left excreta exposed to flies, and these had carried the germs to the different homes. My opinion was strengthened by the fact that all of these houses had summer kitchens made of rough lumber and not screened at all. They were consequently infested with myriads of flies. The epidemic consisted of five original cases and three contact, and of these there were two deaths. Several members of one family ran a temperature of 99 to 100 F. for a week or more and may have had typhoid. No Widal test was made.

Last year a mother and daughter came home from Windsor, and ten days later took this disease. Care was taken with the stool and all excreta, but it could not have been sufficient, because five other contact cases resulted in the village. I am glad to say there were no deaths.

I have just outside my town a typical typhoid home. Twelve cases and at least three deaths occurred there in ten years. The water is from a rock well and flows through a milk cellar. Typhoid bacilli reproduce in milk very rapidly, and in view of this could it be possible that the germs had lived in the milk cellar all of those years? Personally I think not, but would rather conclude that one of the household was a carrier and that all of the cases were infected from that source. There have been no cases at this home during the last three years.

At another home ten cases and four deaths came inside of two months. Every member of the household had it, and seven took it simultaneously. The water was from a surface well, and on examination was found full of typhoid bacilli, which was without doubt the source of trouble, but the germs must have gotten to the well from somewhere, and conceding this we are again back to the carrier.

In January of this year my two children—one three, the other five—were attacked with typhoid within two days of each other. Two weeks later my mother, who lives in the next house, and the village school teacher, who boarded with her, were also infected. They all ran very severe courses, but all recovered. I did everything in my power or knowledge to find the source of infection,

but failed. They were, no doubt, all infected from the same cause. No typhoid had existed in my village for four or five years, and many were drinking water from the same supply. Suspicion, however pointed to a surface well of my mother's, which, on examination, contained some colon bacilli. Entry to that well may have come from a January thaw, which just preceded the outbreaks.

The rest of my eighty cases were sporadic, occurring in single homes from time to time.

Now to sum up the causes of typhoid outbreaks in the country, I would give the following:

(1) Infected water. Roseneau says thirty per cent. of all cases, such as my cases of using lake water, surface infection from higher up on watershed following a thaw or a heavy rainfall. The typhoid bacilli lives much longer in cold than in warm water—from two to seven days in warm and from seven to thirty days in cold and an indefinite length of time in ice. Thus water seems to purify itself in a comparatively short time, and in my judgment it does not play nearly as important a part as was formerly supposed. We have good water in Essex, and we still have our outbreaks of fever. Water has caused some very terrible epidemics, but these sporadic country cases can hardly be blamed to it alone.

(2) The carriers. These are of three kinds: acute, chronic, temporary.

Every patient convalescent from typhoid sheds typhoid bacilli for at least six weeks. These are the acute carriers.

From two to four per cent. of the patients continue to shed the germs for six weeks longer, and a few go on for many weeks, months, and even years. These are the chronic carriers. A case is reported which infected in all thirty-five over a course of several years.

Certain persons who are exposed to typhoid, but who run no clinical course of fever, shed the bacilli for a short time, and may even become chronic carriers. These are very dangerous, as they are not often recognized. The carriers, I believe, are responsible for most of our outbreaks.

(3) Flies. In conjunction with the carrier we have the third cause, namely, flies. They may carry typhoid from thirty days at least and perhaps longer. From the excreta of a carrier to the food of a healthy individual is only a step, and considering that the germ may live a month in or on the body of a fly we can see the great danger of infection from this source. It is a secondary factor in most of the isolated cases occurring in rural districts.

(4) Articles of food handled by a carrier whose hands may be infected may be the cause of original outbreaks, such as apples, oranges, milk, butter, bananas, etc. One example is given where a carrier cooked and served macaroni at a banquet, and a great number were infected. The baking of the macaroni only served as an incubation for the germs. Typhoid bacilli live in milk until it becomes three per cent. acid, in cheese thirteen days, twenty-nine days in ice cream, four months in butter, five days in crude sewage, but many months in frozen sewage or in lumpy sewage.

(6) Soil may become infected from the excreta from a patient or a carrier, and may exist on rapidly growing vegetables, watercress, lettuce, radishes, etc., and thus cause typhoid, or, being exposed to flies or sudden heavy rains, may filter into wells or streams. The germs may live in soil a long period of time, perhaps months and maybe years.

(6) The clothing of a patient or a carrier may spread infection.

(7) Oysters and other fish exposed to sewage have been known to cause the disease.

(8) Milk, while often spreading the disease in the cities, is negligible in country attacks, because each person has their own milk.

To sum up, the carrier causes directly and indirectly most of our rural outbreaks; water and the other things mentioned are secondary to it, and serve as an indirect channel of transmitting from the carrier to the one infected. Authorities differ, but it seems to be clear that in the summer season as high as one per cent. of our population are typhoid carriers (U. S. figures).

Contact cases.—From the patient to other members of the household by any means whatever constitute contact cases. The patients' stool always, urine twenty to thirty per cent. of the time, and sputum expectoration and perspiration possibly, contain typhoid bacilli. Any way that these may get to a member of the household may spread the disease. I have shown that probably thirty per cent. of my cases were of this origin. Flies, water and food are often the indirect method of carrying disease to nurse, attendant or other members of the family. Statistics show that with the greatest care fifteen per cent. of the hospital patients are by contact, and certainly then I am safe in saying that thirty per cent. of our country cases are by this method.

Infection often follows in a neighborhood where typhoid has existed previously. It is caused by carriers or by improper disin-

fection of excreta or infected water from soil where excreta has been emptied.

Having arrived at the means of spreading typhoid, we next consider what are we going to do about it? Typhoid is a germ disease, and is therefore preventable, but how?

#### GENERAL MEASURES.

(1) Education of the public is important, by lectures from the health officers and physicians, at Women's Institute meetings, public gatherings, and in the schools. The public generally think typhoid a non-communicable disease. They think it originates in old ponds and dirty wells. The correct state of affairs and the seriousness of it should be preached without ceasing.

(2) The Medical Officer of Health should be continually advising about the water supply, how to make good wells, the dangers existing in water, and how to make fly-proof, properly-drained closets.

#### LOCAL METHODS.

(1) Vaccination of all attendants, members of the family, nurses, cooks, and everyone who comes in contact with a typhoid patient. This is the most supremely important thing of all. It will prevent nearly all contact cases, and it is harmless and sure.

(2) Isolation of the patient in a clean, bare room, where only those nursing come in contact.

(3) Isolation of nurses and attendants from others in the house. They should never be allowed in the kitchen or dining-room except to eat. The house should be properly screened and flies absolutely destroyed by any means whatever. The bedding and clothing of the patient should be soaked in 1-1000 bichloride solution for twenty-four hours before taking it from the sick-room. All excreta of the patient, the urine, bath water and sputum, should be disinfected by a 1-1000 bichloride, or better still by strong solution of bleaching powder, for twenty-four hours in a closed receptacle. It should then be buried in a place prepared and absolutely covered with a fly-proof cover. The place of burying should be chosen with great care to avoid wells and running streams. On no account should the excreta be spread on the land, and if lumpy should be broken up before treating.

The nurses and attendants should have a five per cent. lysol or carbolic solution for their hands, to be used immediately after caring for the patient at any time, and the danger of putting their hands to their mouth should be shown them. Bed pans, thermometers, rectal tubes, and everything used should be isolated and dis-

infected repeatedly. These things should be repeated until the patient has been six months convalescent, when the discharges of the patient should be examined, and if the typhoid bacilli are gone after three or four examinations the patient is ready to resume his old place in society. If not, the process should be repeated in six weeks, or until it is proven that the patient is no longer a carrier. It is in the carrier that the danger lies, and these examinations are the one thing that the country practitioner cannot do. Until we have a county laboratory and a more enlightened public the typhoid patient will continue to be thrown out upon the public while he is yet a carrier.

This much, however, can be done by any physician: The patient can be reasonably and clearly instructed upon the danger of the carrier. They can be taught to protect their excreta always by fly-proof and properly-constructed closets. They can be taught that it is not safe for them to be handling food for other people for many weeks after convalescence, and that they should always disinfect their hands and clothing. These things will prevent many cases of our typhoid. Where we have failed in the past has not been so much in advising and showing the nurses what to do but in not seeing that the things were done. I have always in my own practice shown my attendants what to do, but I have seldom gone out to see the place where the sewage was buried, to see if it was exposed to flies or in a dangerous locality. I have always left disinfectant for the nurses, and I have known it to have stayed on the shelf till the patient was convalescent.

Improper or careless attendants should be avoided. Get a trained nurse if possible, and if the family are too poor for this, appeal to the reeve of your township, show him the dangers existing, and with his help secure the services of some practical nurse whom you know you may depend upon. This is the only safe way.

One should always try to find the original cause of a typhoid outbreak. If it is even a small epidemic this can be done by a process of elimination. Find something in common with all the cases, such as milk, water, etc. If it is an isolated case, look for a carrier who may have been visiting with the family or in the neighborhood. Investigate the water supply, and if you can discover the cause remove it.

There is no way of curing a carrier. Injections of dead bacilli have been tried. Kaolin has been tried. Operative procedure, removal of the gall bladder, and other methods, but it was found that there was no way to stop the shedding of typhoid bacilli by a carrier, but he can be guarded against by the methods spoken of above.

I have found that in getting water examined by a Provincial Board that the public do not understand the report. The technical report is all right, but there should be added to it a plain advice as to the probable condition of the water.

I had an amusing incident in this connection once. I refused to allow a Public School Board to use lake water stored in an open well. They filled it from the lake each week. They could get no rock-water in this district, and I advised a filtered well from the eaves and gave them details regarding constructing such a well. There was a filtered well near by, and they sent two samples to Toronto, one of them lake water and the other from the filtered well. Doctor Amyot reported the lake water much the better, which it no doubt was, but, as I have shown you before, lake water had already caused an epidemic of twelve cases of typhoid in this community, and was by times highly dangerous and certainly not fit for school children.

In view of this I think samples of water should be examined at Toronto only through the Medical Officers of Health.

To recapitulate, I would make the following points:

(1) Typhoid is a highly dangerous preventable disease, and if proper care is exercised a reduction of at least fifty per cent. is possible with present methods.

(2) All cases should be isolated and generally treated by the profession as a contagious disease.

(3) The public will assist if correctly informed.

(4) The physician in charge should personally not only instruct, but superintend all preventive measures.

(5) That the cases which show no clinical history and the carrier are the real dangers.

(6) That increased laboratory facilities are necessary before the rural health officer can properly control his carriers.

In closing this paper I wish to say that I am not pretending it to be full and complete, but that I have expressed myself as I see it and stand open for correction by your honorable body. Any statements I have made have, however, been given in good faith and with an earnest desire to at least start a valuable discussion which will result in a great practical advance in typhoid methods.

I was aware of the prevalence of typhoid in Northern Ontario, having had it myself there twelve years ago. Our vital statistics show very little typhoid there now, and before I sit down I wish to congratulate the northern members on having coped successfully with the disease.

Gentlemen, I thank you for your kind attention and wish you all a most prosperous year in your work.

## Reviews

*Chemical and Microscopical Diagnosis.* By FRANCIS CARTER Wood, M.D. Third Edition; 194 illustrations. New York and London: D. Appleton and Company.

This is a splendid book for medical students and practitioners as well as for the laboratory man. In this edition will be found the newest technique, and the most authoritative methods in vogue.

*Diagnostic Symptoms in Nervous Diseases.* By EDWARD L. HUNT, M.D., Assistant Professor of Clinical Neurology, College of Physicians and Surgeons, New York City. Second Edition, revised. 12mo of 292 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1917. Cloth, \$2.00 net. Canadian Agents, The J. F. Hartz Co., Limited, Toronto, Canada.

General practitioners, who very often devote little attention to nervous diseases, will find this an admirable little book of the utmost practical importance to them in arriving at a diagnosis in nervous disease patients. Of course, it will be of the best value to the medical student, as well as to the interne. The illustrations are original and add much to the value of the text, which is carefully and concisely arranged.

*Practical Treatment, Volume IV.* By 76 eminent specialists. EDITED BY JOHN H. MUSSER, JR., M.D., Associate in Medicine, University of Pennsylvania; and THOMAS C. KELLY, M.D., Instructor in University of Pennsylvania. Desk Index to the complete set of four volumes sent with this volume. Octavo 1,000 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1917. Cloth, \$7.00 net; Half Morocco, \$8.50 net. Canadian Agents, The J. F. Hartz Co., Limited, Toronto, Canada.

Volume IV. supplements the three previous volumes of this excellent production. It has enabled the writers of articles in previous volumes to add to and perfect by additions that bring each article up-to-date. There is a separate volume as a desk index. The whole work is one which must appeal to live practitioners.

# Dominion Medical Monthly

And Ontario Medical Journal

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Published on the 20th of each month for the succeeding month. Address all Communications and make all Cheques, Post Office Orders and Postal Notes payable to the Publisher, GEORGE ELLIOTT, 219 Spadina Road, Toronto, Canada.

Vol. XLI.

TORONTO, SEPTEMBER, 1917

No. 3

## COMMENT FROM MONTH TO MONTH

**Honors** to Canadian medical men seem to be few and far between. We do not recollect of any medical man, west of Ottawa, ever having been knighted, either in peace or war time. Montreal has had two; Ottawa, one; and, if we mistake not, St. John, N.B., one—for purely professional attainments and activities. True, some of our men who have been overseas, and one or two who have not, have been made C.B.'s or C.M.G.'s—perhaps in all cases wisely—and medical men, as a rule, are “thankful for small favors.”

Medical men cannot help feeling, however, that distinguished members of their profession, in peace times, rarely receive recognition at the hands of those responsible for making these recommendations. They are consumed with mild surprise, in war time, however, that not one of Canada's leading medical lights, thus far, overseas, has been sufficiently accomplished to “pull” off such spectacular distinction.

Honors are generally considered to be all right, when the individual so honored merits the distinction, but even at home, when D.C.L.'s or LL.D.'s are inadvertently conferred for some other reason than for scholastic attainments, or achievements, a nauseating effect is produced upon many minds—for people do

not stomach well the conferring of any honor if the recipient is not believed by universal public sentiment to be worthy of it.

The whole question of honors is quite likely to create disgust if those responsible do not clearly distinguish upon what grounds the distinction is to be conferred.

Democracy is now said to be fighting a militant aristocracy—and democracy naturally repels the appearance of anything savoring of back stoop influence. It is painful to even think that political "pull" oftentimes elevates the commonplace brain and heart above the one generally recognized for ability and goodness.

It is refreshing now and again to see a really big man, courageously and firmly refusing honors; and it would be wholesome and corrective if the practice more generally prevailed; for the suspicion is that "all is not gold that glitters." The feeling which prompts refusal may, in most cases, be a desire to remain to posterity under the name which brought the individual to the brink of such distinction. It may be due to pique, that the honor was tardy of coming, or that other feeling of self-conceit, perhaps, that it has been conferred upon others not nearly so meritorious. Whatever it is, public sentiment is of the opinion in Canada, at all events, that money may sometimes buy, and politics sometimes "pull" a man into an honor where real merit counts for nothing.

No profession, or class of citizens of Canada, more self-sacrificingly laid aside their labors—often of considerable financial increment—to do their duty, as they conceived it, in the terrible war which is now only apparently coming home to many people of this Dominion. With no thought of honors; with no thought of financial gain—most gave up incomes far in excess of the pay of their rank; with no thought of how they would re-habilitate themselves after the war—and only medical men know of the long years necessary to build up a lucrative practice; they volunteered readily, and gladly in large numbers to "do their bit," unmindful of life, limb, reason, home, comfort, happiness.

Their work will be their best monument; the knowledge that they have done their duty, their best decoration; the love and esteem of their confreres, their best honor.

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There was a young lad—one Knowitall Holt,  
Who was anxious to know what was meant by a "volt,"  
And he monkeyed around till he got such a jolt,  
That they put him together with screws and a bolt.

—*The Editor.*

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## News Items

Dr. Eddie Hodgson, Toronto, has sailed for overseas work.

Dr. Robert J. MacMillan, Toronto, has sailed for overseas work in France.

Dr. E. P. Lachapelle, Montreal, has been elected President of the Dominion Medical Council.

Dr. Ingersoll Olmstead, Hamilton, has been spending a vacation in the Maritime provinces.

It is understood that the Ontario Government will appoint a Royal Commission on the Feeble-Minded.

Dr. R. D. Rudolph, Toronto, is in London, England, acting as consulting physician to Canadian Hospitals.

Major Harold Parsons, M.D., who has been with the University of Toronto Base Hospital, has arrived in England.

Lieut.-Colonel D. W. Macpherson, O.C., Ontario Military Hospital, Orpington, England, has been created a C.M.G.

Dr. A. S. Moorhead, Toronto, has left for France, where he has received an appointment under Colonel Herbert A. Bruce.

Lieutenant-Colonel E. B. Hardy, Toronto, O.C. Toronto Base Hospital, has been elected President of the Toronto Branch Great War Veterans' Association.

Surgeon-Major Napier Keefer, Toronto (retired in 1891 from the Indian Army), has sent to His Majesty King George, \$47,500 for distribution amongst certain institutions caring for wounded soldiers.

Major Frank Muir Walker, M.B., Toronto, 1913, has been awarded the Military Cross for utmost gallantry and devotion under heavy fire. He went through a heavy barrage to wounded men and attended them for over an hour.

Dr. Andrew Macphail, Montreal, editor of *The University Magazine*, and the *Journal Canadian Medical Association*, recently delivered the Cavendish Lecture, the second time a Canadian has been so honored—Sir William Osler having been the first.

Captain A. W. Wakefield, C.A.M.C., was on a hospital ship which ran ashore near Halifax in July. He has since visited Montreal. He went overseas at the beginning of the war with the Newfoundland Medical Corps, but was soon transferred to the R.A.M.C.



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## Publisher's Department

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**TYPHOID FEVER.**—Attention is directed to a timely announcement which appears elsewhere in this journal over the signature of Parke, Davis & Co., and bears the caption "Typhoid Fever." Prophylaxis, diagnosis and treatment, in logical sequence, are briefly and comprehensively considered in this advertisement. Typhoid Vaccine, Prophylactic, is suggested as a suitable immunizing agent. This product is a twenty-four-hour culture of the typhoid bacillus, grown on inclined agar and suspended in physiologic salt solution to which has been added 0.2 per cent. trikresol as a preservative. It is accurately standardized. That this vaccine confers immunity from typhoid fever has been shown by an abundance of clinical evidence. In the diagnosis of typhoid fever the Typhoid Agglutometer has undoubtedly done much to popularize the Widal test and to extend the usefulness of that valuable diagnostic aid. Parke, Davis & Co. supply two forms of the agglutometer, designated as No. 1 and No. 2. Directions for use accompany each outfit. For the treatment of typhoid fever Typhoid Phylacogen is an agent of established value. A marked effect of its use in all favorable cases is an early subsidence of the fever and a prompt establishment of convalescence. The technique of dosage and other particulars of the treatment are covered in Parke, Davis & Co.'s literature on Typhoid Phylacogen.

---

**THE TREATMENT OF SCIATICA BY APPLICATION OF STRONG HYDROCHLORIC ACID.**—Dr. Harrington Sainsbury has described in *The Lancet* of June 16th remarkable results from the treatment of neuritis, and particularly of sciatica, by the application of strong hydrochloric acid to the skin along the line of the inflamed nerve. He ascribes the treatment to Dr. Hugh Wingfield, but we may point out that it is not new and was noticed in our columns nearly twenty years ago in an annotation on an article which was published in the *Semaine Médicale*. We may recall the circumstances, as this valuable remedy seems in the interval to have been almost completely forgotten. Moreover, the manner of its discovery is interesting. This was due to an accident founded on a blundering ignorance of chemistry. A man who had suffered for many years from sciatica was treated in an Algerian hospital by hypodermic injections of salt and water, but without much suc-

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**NEWTON A. HILL**

25 Front Street East, Toronto

cess. After he had left he bethought him that perhaps the salt was not strong enough and that a stronger preparation of salt might be successful. He therefore procured some "spirit of salt" (strong hydrochloric acid) and painted it on the skin. He got rid of his long-standing trouble in a few days. Shortly afterwards he attended the hospital for some other affection, and confided in Doctor Bourlier, professor of therapeutics, whom he saw, how he had got rid of his sciatica. Doctor Bourlier thought the plan worthy of trial, and employed it in several cases with invariable success. A thesis was then published on the subject by Dr. C. Gennatas, of Montpellier, on the basis of a dozen cases of sciatica, all of which were completely relieved by this means. As far as we know, only one paper on the subject has been published in this country. After the appearance of our annotation Mr. R. A. Bayliss reported sixteen cases of sciatica treated by application of hydrochloric acid over the course of the sciatic nerve. In most instances they had defied every other treatment. Two patients were completely cured, eleven were considerably relieved, and three did not improve. He also treated ten cases of intractable pain in the heels and plantar region, the sequelæ of acute rheumatism, many being gonorrhreal. Four of the patients were quite cured, one was very much relieved, and five were not improved.—*The Lancet.*

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IN PREGNANCY where elimination is deficient, as indicated by headache, slight disturbance of the digestion and diminution of solids and urea in the urine, Sanmetto in connection with calomel is remarkably effective. The calomel acts upon the cells of the body, those of the liver especially, effecting proper removal of the waste and accumulated toxins. Sanmetto increases the activity of the kidneys, in this way promoting the removal of excrementitious products from the blood, and at the same time acts as a systematic tonic, enabling the body to more completely dispose of its waste products through its organs of elimination, and resist the evil effects from systemic absorption of auto-toxins.

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A very tall, thin lieutenant reported in Flanders to a Canadian battalion commanded by a bald, elderly colonel. After a few days he approached his commander and asked permission to air a grievance. "I wish you would use your influence, sir, to restrain my platoon from referring to me as 'Legs,'" he said. "Sure, my lad, sure," replied the colonel, solemnly, "if you'll use yours to stop my whole battalion calling me 'Old Baldy.' "

# Dominion Medical Monthly

And Ontario Medical Journal

VOL. XLIX.

TORONTO, OCTOBER, 1917

No. 4

## Original Articles

### TO ASPASIA ON THE DISSECTING TABLE

BY JAMES S. SPRAGUE, M.D., C.M., BELLEVILLE, ONTARIO.

*Nullum est jam dictum quod non est dictum prius.—Terence.  
Tu facito, mox cum matura adoleverit aetas sis memor.—  
Virgil.*

*Pareant, qui nostra ante nos dixerunt.—Lucullus.*

While reading Livy I found at the closing of the third book, the lines which are the inspiration for this paper.

*Manes Virginiae mortuae quam virae felicioris—per tot domos  
et petendas poenas vagati nullo relicto sonte, tandem quieverunt.*

(And the shades of Virginia, more fortunate after her death than in her life, having wandered through so many families in search of vengeance, at length, when no guilty one was left unpunished, rested in peace. *Manes Virginiae quieverunt.*)

After the anguished girl, imprecating punishment on the cruel deeds of her betrayer, sent forth sad words from her broken bosom, the ruler of the celestial gods assented with his potent nod, whereat the earth and the deep sea trembled, and the firmament shook its glittering stars, as Catullus in his *Peleus and Thetis* informs us.

I recall to memory my first view of an Aspasia, whom I saw on the dissecting table of Toronto Medical School, (Toronto University) in 1866, and not forgetful of my mother's death in 1861—and her advice to me during her last illness—which was rendered more impressive in consequence of the death, a few days previous, of an “unfortunate” maiden of my native village—one whose similar beauty and graces James Whitcomb Riley and Burns have so truthfully described. Yes, Janet died as all the village people said, from a “broken heart;” and my old preceptor, many years afterwards, verified the people's opinions. Janet's curse came true

for the finger of God pressed rudely on the heartstrings of the seducer, and they shrivelled and charred under His burning touch.

To these lines I add confirmatory views.

In life they said that she was beautiful.

I said that she was more:

One of these women, women hate, and as Byron says, men fatally adore.

To Aspasia. (Vide Anthou's Classical Dictionary.)

Naked she lies upon the cold gray slab,

With her large eyes half open e'en in death;

Her flesh is livid with a greenish tone—

'Tis several days since she breathed her last breath.

Her laughing mouth, her nose, we still admire,

Her beauty even yet we can discover:

But quenched forever is Passion's burning fire.

She now awaits the worm, her latest lover.

She feels no more man's unkind caresses.

No more her lips shall sip delirium's Wine;

And yet in spite of all life's drunkenness,

She still preserves, in death, her charms divine.

The kisses on her mouth are turned to ashes,

The ringlets on her forehead turned to gray,

The death damp on her long and soft eyelashes

All evidence foul corruption and decay.

The sharp, bright scalpel through her muscles sinketh,

For at dissection's task one must be dutiful;

What though her flesh be worm eaten and stinketh.

To an anatomist she still is beautiful, are the words of Charles Beauclaire in *Lancet and Clinic*. With Moore, "O! make her a grave where the sunbeams rest, when they promise a glorious morrow." Yes, Conscience does make a coward of every man who thinks; and a man's first care, as Addison has it, should be to avoid the reproaches of his own heart; his next to escape the censures of the world. If the last interferes with the former, it ought to be entirely neglected; but otherwise, there can not be a greater satisfaction to an honest mind, than to see those approbations, which it gives itself, seconded by the applause of the public." These are worthy suggestions to us in Medicine.

From my Memorabilia and Analecta I add—as the thread that binds together this paper is mine only,—the following as keeping to the title thereof.

She is only a rose with a broken stem that is plucked and then cast aside, there is no room for her in the garden of love when her fragrance and perfume have died. For you can't take the stain from a woman's name or a flaw from the purest gem. She has chosen her path and must bear the blame. She is a rose with a broken stem. But the bird with a broken pinion kept another from the snare, and the life that sin had stricken, saved another from despair; each loss has its compensation, there's healing for every pain—but the bird with the broken pinion never soars so high again." Milton thus tells us: he is for God only, and she for God in him. Anyway, "So God empal'd our Gransire's (Adam's) lively look, through all his bones a dreary chillness strook, siel'd up his sparkling eyes with iron bands; led down his feet (almost) to Lethe's sands; in briefe so numm'd his soule's and bodie's sense, that (without pain) opening his side from thence he took a rib, which rarely he refined, and thereof made the mother of mankind." As regards crime. Dr. Vaughan regards it as a disease, and asserts that the only way to eradicate it is to treat it as such and disinfect its breeding places.

The epitaph of Dr. Samuel Young I present, it says he lived (1773-1829).

Here lies a most extraordinary man; he saved the lives of thousands, though he was a physician, and took the greatest liberties with the chapest matrons without offending themselves, or what is more surprising, their husbands! Mothers and daughters wept his death—the former from gratitude, the latter from expectation. Cupid: You gave him no assistance and by the omission proved yourself as ungrateful as blind: for this great man's life was spent in preventing love's labor from being lost." His life was pure and he taught purity and his epitaph teaches purity—even "Evil to him who evil thinks."

*Hic situs est.* A song for the girl I loved, sang Frederick Langbridge, God love her! a song for the eyes of faded light, and the cheek whose red rose waned to white, the quiet brow with its shadow and gleam, and the dark hair drooped in a long, deep dream; the small hands crossed for their churchyard rest, and the lilies dead on her sweet, dead breast. The girl I loved, God love her!

One consolation is that of an old poem: There is no death! The stars go down to rise upon some fairer shore; and bright in heaven's jeweled crown they shine forever more. Justice Wm. Fenwick Riddell, of Toronto, well tells us M.D.'s: The doctor is ever in a fight with that dread antagonist who must conquer

some day—that antagonist sits at the other side of the chess-board and watches every move; he is in no haste, but while he plays fair, he never makes a mistake himself, and he relentlessly exacts the full penalty for every mistake of his opponent—and unfortunately that opponent does not know all the rules of the game. The lawyer has an antagonist fallible as himself and one who does not always pursue his advantage; but all of the rules of the game are known. Which do you prefer?"

To serve that single issue, lest the generations fail, as Kipling considers, the female of the species must be deadlier than the male. She who faces death by torture for each life beneath her breast may not deal with doubts or pity, must not swerve for fact or jest; these be purely male diversions, not in these her honor dwells. She, that other law we live by, is that law and nothing else." We present Fiskdale's opposing views:

"Twas the female of the species who sore travailed at our birth, 'twas the female of the species gave the Saviour to our earth. 'Twas the mother, gentle, tender, whom we'll love with dying breath. 'Tis the mother of our species who is faithful unto death.

Thus sang our immortal brother, Dr. Oliver Wendell Holmes:

"We count the broken lyres that rest where the sweet wailing sleepers slumber, the wild flowers who will stoop to number? Alas for those who never sing and die with all their music within them!"

Nay, grieve not for the dead alone whose song has told their hearts' sad story, weep for the voiceless who have known the cross without the crown of glory! Not where Leucadian breezes sweep o'er Sappho's memory-haunted billow, but where the glistening nightdews weep on nameless sorrow's churchyard pillow. O hearts that break and give no sign save whitening lip and fading tresses till death pours out his longed-for wine slow-dropped from misery's crushing presses, if singing breath or echoing chord to every bidden pang were given, what endless melodies were poured, as sad as earth as sweet as Heaven!

Woman is the protectress, instinctively, of life. It is the children of her sorrow and suffering that are being sacrificed (and in this, our Christian (?) age for jealousy and the ambition of rulers, for civilization and empire.) She is really the one most fitted to sympathize, to understand and to set things right. The woman movement is a true racial movement and it must win. Human life has been exploited as it never was before in the world's history. Civilized man, with his false ideals, works with

a feverish haste unknown even in the days of slavery. The world is being worked to death so that a race of plutomaniaes may satisfy their insane greed. Life and the joy of living are of no consequence," and, if beauty slides the bolts of heaven, certainly the time will come when the woman will throw off her shackles and make laws to punish the seducers. Thus sang a maiden, slender, fair: "Love is sweet, sweet, sweet. See her eyes; what dreams are there? And the sunbeams in her hair, and the winds her secrets share, love is sweet." As my favorite, Dryden, tells it, As precious gums are not for lasting fire, they but perfume the temple and expire; so was she born, exhaled and vanished hence. A short sweet odor of a wide expense. She vanished, we can scarcely say she died; for but a now did heaven and earth divide; she passed serenely, with a single breath; this minute perfect health, the next was death. As gentle dreams our wakeful thoughts pursue; or one dream pass'd we slip into a new; so close they follow, such wild order keep, we think ourselves awake, yet are asleep; so softly death succeeded life in her, she did but dream of heaven and was there.

On several well remembered occasions when, in consultation, being consulted or at the bedside of one of the sisters of Aspasia I soliloquized thus: I saw that the light of her beauty had faded; the eye that illumined it gazed wildly and drear; the tresses, neglected hung loose and unbraided, and shrouded a cheek dewed with memory's tear. Yet she breathed not the name of her cruel deceiver; the solace of friendship 'twas vain to impart, she had loved with the warmth of a guileless believer; but man had been faithless and broken her heart. Yes, the dwelling is low where she withered in sadness, the bower is deserted, her harp is unstrung; the roses she twined, the light notes of gladness, no longer shall blossom, no more shall be strung. The dove hath a refuge, a house of protection, when rent is the storm cloud, and vivid its dart; but desolate wanders the maid of affection when truth has been slighted, and broken her heart.

She has gone and her relies the willow weeps over; in the grave's quiet slumber are hushed her deep woes, she hears not the sigh of her recreant lover, no promises blighted disturb her repose.

Her spirit, too pure for the bonds that enchain'd it, now hallowed in realms whence it ne'er shall depart, looks radiantly down on the Wretch who disdained it, on him who has rifled and broken a heart.

In the "Wake Song of Coleraine," by Jean Blewett and in "Canadian Magazine" I find these very expressive lines:

Life was hurt, but life is o'er—  
Sleep ye softly, Mavourneen!  
Love was pain, but love's no more—  
Rest ye, rest ye, Mavourneen!  
Out slips the tide all silvery white—  
Sleep ye softly, Mavourneen!  
Nor life, nor love can hurt to-night—  
Rest ye, rest ye, Mavourneen!

In conclusion, from the classical work "Religio Medici" by Sir Thos. Browne, M.D., I present his words:

"The same vice committed at sixteen is not the same, tho' it agrees in all circumstances, at forty; but swells and doubles from the circumstanee of our ages," and as further proofs we could add confirmatory words from an old work on "Anatomy of Melancholy," equally as classical as that of "Religio Medici," which freely names the Sapphos, Lueretias, Lueippes, etc., and conveys the instruction needed among men, especially by social reformers, moralists, physicians and students of psychogenesis and psychophysics. "The Causes and Cures of Crime," by C. V. Mosby Co., St. Louis, Mo., is a profitable study of many interests, among many, with which we should be an authority, and if my paper present no merit, the naming of these great works or books may be sufficient atonement, and my apology is: I am 72 years in life. "The true preventive," says Dr. Lawson Tait, "Diseases of Women," page 91, "consists in what I believe it to be the duty of every parent to give to every child, instruction in the nature and purport of sexual functions, how they are to be used and how easy they may be abused. If this were done, we should not only diminish sexual evils, but we would greatly diminish sexual immoralities." As president emeritus, Dr. Charles Elliot, (Harvard) expresses it: "Innocence among the young is not essential. What we should strive for and which is vitally necessary to preserve the human race is virtue. Education of the youth is a chief incentive to virtue," and that education should be given by the mother and by the family doctor, even by the family attorney, for our so-named spiritual advisers, as regards sexual, or social evils more or less associated therewith, are, as a rule, according to my observations, which embrace nearly those of fifty years, astonishingly puerile. I do not fully agree with Hall Caine: "We

must learn to face the facts of life," yet better, teach them timely, circumspectly and clearly, "as they really are, and by seeing the world in the light of truth we can set about to correct its evils. If literature is to be censured or censored into leaving some of the most vital questions of our social life ignored, or hushed up, or discussed in the dark, then we had better initiate a crusade of silence against all ethical and moral teachings, for assuredly literature, and especially fiction is at this moment one of the most effective and far-reaching of all instruments in the moral development of the race."

Brother, it is not for us or the dear people at large, to fully sanction the views of Caine, who, in one of our household magazines presented his full potentiality of words to encourage adultery in one of his heroines, No! It is not for the dreamers; recluses; college professors; literary M.D.'s with no experience in life; women of our profession, yet wanting practice, disgracing not only us but themselves by their publications. No! brother. It is not from these or clergymen, or the impractical or pipe dreamers our country is to learn its sexual and allied social enemies of soul and body, but from and only from the mother, the family doctor and its legal adviser, practical men, unbiased, learned and altruistic, for we well know that he who poisons the germ cells is the greatest criminal, and equally to be dreaded is the seducer of virginal purity either by commission or by publication. We all have our dreams, and it is our hope and prayer that out of these dreams will come a more perfect manhood and womanhood for future generations, being satisfied that our duty in our noble professions must be held as that of fathers to the people, so as to include our duty to posterity, even if shapen in iniquity, in sin "did our mothers conceive us."

No shot or shell for the vulture breed that sucks at the nation's heart. The monster, Vice, and the giant, Greed, in highway, hall and mart; the demon, Crime, and a countless band that in dark and daylight roam; but a fleet for a foe on a foreign strand while the foe is lord at home, as James C. McNally, in *New York Times*, has so clearly told us.

Who next to the seducer, the poisoner of germ cells and literature, etc., are they but of the vulture breed, writers and publishers of "sexology" for the salacious public? After this war is over, what then?

"When wilt Thou save the people? O God of Mercy, when? Not Kings and lords, but nations, not thrones and crowns, but men.

Flowers of thy heart, O God, are they, let them not pass like weeds away, let them not fade in sunless day, God save the people." *Salve nos, et Dominus Vobiscum!*

*Equidem omni cura morem servabo Senis: sed si libuerit aliquid interponere dictorum sensus ut delectet Varietas, bonas in partes, lector, accipiam velim.—Phaedrus.*

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## A FEW RAMBLING THOUGHTS OF A MEDICAL OFFICER OF HEALTH

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By DR. F. KING, ST. CATHARINES.

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*Mr. President and Gentlemen,—*

Assuming that human nature in different municipalities is very much alike, and that the local conditions are more or less similar, I beg to submit a few rambling thoughts on some of the subjects in which this Association is interested, with the hope that you also have had thoughts on the same lines and that some improvement in working out health problems may be the outcome and some uniform system of action adopted.

When you first accept the position and assume the duties of a Medical Officer of Health, you naturally turn to "The Public Health Act" and to the Regulations of the Provincial Board for information and guidance. At the first glance the different paragraphs of the Act appear satisfactory and apparently cover almost every possible contingency likely to arise, but it is not long before when, on more mature experience, you begin to realize that there is still much to be desired.

The Public Health Act appears to be like many texts of Scripture, capable of many constructions, according to the ideas of those who are trying to make it suit their own purposes, and there are always some individuals in every community opposed to improvements. These persons are distinguished by ignorance; they have only one idea and that is wrong. It is just here where the difficulties of a Medical Officer of Health begin.

It is not my intention to criticize The Public Health Act, for I fear that it would take a long summer day to point out the many difficulties and obstructions met with in the task of carrying out its administration. It is often said that doctors disagree and that theologians have widely different opinions on religious subjects, but the Health Act is, as are all other Acts of Parliament, the

production of a member of the legal profession, *i.e.*, so far as their wordings. These Acts too often require a bench of other eminent lawyers to decide what the original compilers intend to convey. Almost every magistrate and every lawyer will place a new and different construction on the language used to make it suit their own purposes, thus amplifying the old saying that a coach and four can be driven through any Act of Parliament.

The next subject to which your thoughts turn is your Local Boards of Health and their *personnel*. These boards are the joint production of The Health Act and the municipal councils. We have Boards of Health, good, bad and indifferent—too often indifferent. Until a few years ago these bodies were often looked upon as the most useless and inefficient public organizations in the provincial system of government, whose object sometimes appeared to be to find an excuse for not carrying out the provisions of the Act. While great improvement has been made in late years, an ideal system for selecting Boards of Health will not be formed until the influence of the ward politician is eliminated. My experience of boards in the past is that the average member considered that his duties were fulfilled if he attended the meetings. Few, if any, of these gentlemen have read The Public Health Act; in fact, I once asked a very worthy gentleman, an architect by profession, and who had been a member of a city Board of Health for twenty-five years, what he considered his duties as a member of the board to be. He promptly replied, "To attend the meetings and pass the accounts." - He had never seen or read the Act or any health regulation. I do not think this unusual to-day.

The most important contribution to the working out of the health problems is the education of the people, the great majority of whom would be quite as willing to live under good health conditions as bad ones, if they but knew how.

In addition to the education of the general public our parliamentary and municipal authorities also require special handling in this respect, as instance no later than at the last session of the Legislature, when an effort was made to interfere with your independence. Therefore, if the members of this Association, coming, as you do, from every electoral riding in the Province, would make a resolute effort to educate your representatives on health lines much benefit would undoubtedly result. In other words, sink your political feelings for our election; no aspirant for political honors would antagonize six or eight active medical men in his district.

During the past two and a half years I have been impressed by the deplorable fact that so many of our young men of military age have been pronounced medically unfit to defend their country's flag, their homes and families. From the recruiting and medical examining records it appears that about fifty per cent. of the young manhood of this country have been declared defective for military duty. This is a condition which should receive the prompt and earnest consideration of our governments. Young men presenting themselves for the military service are rejected for many causes—some are too short, others deficient in chest measurement, defective eyesight, bad teeth, skin disease, heart, lung and mental deficiency, rupture, varicocele, varicose veins, ingrowing toe nails, hammertoe or overlapping toes, bad corns, bunions, etc., etc., many of which might have been prevented or rectified in childhood under proper medical school inspection. I am glad to know that our energetic, progressive and aggressive colleague, Doctor Hastings, of this city, than whom there is no more up-to-date M.O.H. on this continent, is forward in this matter, and I feel that if the city of Toronto has the good sense to adopt Doctor Hastings' advice and leave him unhampered, the next generation of young men will not present the deplorable condition brought out by this great war. These thoughts turn us to view our public schools.

The Educational Act, I believe, provides that School Boards shall appoint medical and dental examiners; yet, so far as I am aware, this provision is conspicuous by its absence or carried out in a perfunctory manner.

The examination of school children does not directly come under the duties of a M.O.H., but periodical inspections are expected. Some time ago I made a visit to a junior department of one of our schools. There were twenty-four children in attendance, ranging from eight to ten years of age. Nineteen of these children presented some form of disease—enlarged tonsils, adenoids, obstructed nostrils, inflamed throats, bad teeth, skin diseases, etc., etc., all or nearly all of which could have been rectified through efficient school medical examinations. Another rambling thought is on the vexed question of school vaccination, but that is another story—and time is up.

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Captain A. L. McQuarrie, medical officer of health, New Westminster, B.C., who went overseas with the 121st Battalion, as regimental officer, has been appointed officer commanding Canadian Sanitary Section No. 7 in England.

# Dominion Medical Monthly

And Ontario Medical Journal

EDITED BY

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GEORGE ELLIOTT, MANAGING EDITOR.

Published on the 20th of each month for the succeeding month. Address all Communications and make all Cheques, Post Office Orders and Postal Notes payable to the Publisher, GEORGE ELLIOTT, 219 Spadina Road, Toronto, Canada.

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Vol. XLIX.

TORONTO, OCTOBER, 1917

No. 4

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## COMMENT FROM MONTH TO MONTH

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**The Survival of the Fittest**, as a cause of the terrific conflict upheaving the world, has not, heretofore, been much considered even though there have been as many causes assigned to the War as there are sands in the sea.

Vernon Kellogg, professor of biology in the Leland Stanford University, California, was on the staff of the American Relief Commission for Northern France and Belgium, and came into close association with an old fellow-worker, a captain-scientist. They talked the war, and especially the cause of the war, out night after night, each getting the other's point of view. Professor Kellogg went over an avowed pacifist; he returned a pronounced pro-ally, convinced that the war must go on to a definite end and that Germany must be beaten for the preservation of civilization. He gives his argument in the August issue of *The Atlantic Monthly*.

In talking it out biologically, they agreed that the human race was governed by fundamental biologic laws of variation, heredity, and natural selection. The creed of the German biologists, natural philosophers, and intellectuals is that natural law based on violent and fatal competitive struggle, must work out in the human

race as in the animal kingdom—a mutual fight doctrine, as opposed to our altruistic, or mutual-aid point of view. They consider that this struggle must go on for it is natural law, and should go on, so that it may work out in its ruthless and cruel way the salvation of the human species. We are in the wrong pew and should back up, be turned aside, and made to fall into the right line of natural law, because their social systems and political organizations have reached the highest perfection, and is the chosen type of human community life. Add to this the assumption that they are the chosen people to set democracies right; and you have a stonewall of argument, and conviction that you may butt with the reasoning end of your anatomy, but in vain. As the Professor says: "You long for the muscles of a Samson." In other words the blonde beast must be beaten down to earth, and have it knocked into him that our democracy, our civilization, our mutual-aid principle, our live-and-let-live system of community life, is the right and chosen line by which the human race marches to its destiny.

The danger in all this, Professor Kellogg remarks, is that the Germans believe what they say. We have abundant and overwhelming evidence that they have acted upon this belief and still continue to act upon.

Canadians, then, if this biologic view be correct, are no more fighting for England—we mean, of course, the British Empire—than for France and Belgium. They are fighting for themselves, for their own mutual-aid democracy. In that democracy, equality of every man before the law, has been the fundamental principle before the war, should be the same during the war, and must be the same after the war.

Three years of War! The Allies fight on, and Canada is with them to a definitive end.

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*The Indian Operation for Couching for Cataract.* By R. H. ELLIOT, M.D., late Superintendent Government Ophthalmic Hospital, Madras. Price, 7 shillings. London: H. K. Lewis.

This book has seven plates and many other illustrations. Dr. Elliot has had many years' experience in India at the above-mentioned hospital. The volume incorporates the Hunterian Lectures by him in 1917—February 19th and 21st. The book will be especially valuable to oculists.

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## News Items

Dr. W. P. Currie, Montreal, has joined the C.A.M.C., and expects to go overseas shortly.

Dr. F. W. Nagle, lecturer in anesthesics, McGill University, has been elected president of the American Association of Anesthetists.

Lieut.-Colonel William B. Hendry, Toronto, has arrived in England with the University of Toronto Base Hospital from Saloniki.

Dr. R. C. Ferguson, Winnipeg, has been appointed medical superintendent of the Qu'Appelle Sanatorium, pending the return of Dr. Hart, who is on active service.

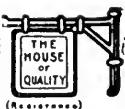
Dr. A. B. Atherton, one time a practitioner in Toronto, but for many years of Fredericton, N.B., has retired from practice and has taken up residence in San Diego, California.

An Advisory Committee on Venereal Diseases has been organized in connection with Military District, No. 2, Toronto. Major J. G. Fitzgerald has been elected president, and Captain Gordon Bates, secretary.

A proposal for the compulsory military training for male students has been adopted by the Board of Governors of the University of Manitoba. Unmarried males of twenty years or over may be prohibited from attending lectures or taking examinations, with the exception of those who are physically unfit for active service.

Two well-known Toronto physicians died recently. Dr. George R. McDonagh had been long associated with the University of Toronto as Professor of Rhinology and Laryngology. Dr. J. Orlando Orr, had retired from active practice for some years and was best known as the successful manager of the Canadian National Exhibition.

Lieutenant-Colonel A. S. Shillington, Ottawa, has returned from England on short leave of absence. He is O.C. Kitchener Military Hospital, Brighton. Lieutenant-Colonel Walter McKeown, Toronto, is second in command and chief of the surgical department. Captain G. C. Cole is head of the medical staff. Dr. Chas. A. Temple, Toronto, is also attached to the staff of that hospital.



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## Reviews

*Practical Materia Medica and Prescription Writing*, with illustrations. By OSCAR W. BETHEA, M.D., Ph.G., F.C.S., Assistant Professor Materia, Tulane University of Louisiana. Second revised edition. Philadelphia: F. A. Davis Company.

This is a good practical book on Materia Medica. In the present edition some old drugs have been dropped and some new ones added, to bring it up-to-date with reference to Pharmacopœial changes. There are many good, valuable prescriptions.

*The Medical Clinics of North America*. July, 1917. Price per year, \$10.00. Philadelphia and London: W. B. Saunders Co. Canada: J. F. Hartz Co., Toronto.

The valuable productions, *The Surgical Clinics of North America*, which succeeded *Murphy's Clinics*, and which were so welcome Canada over by surgeons, now has a complementary volume in the *Medical Clinics*. This will be appreciated by the physicians. In this volume many distinguished men have contributed numbers which are of great value—Janeway, Barker, Futcher, etc., well and favorably known to Canadians. We bespeak for this periodical a prompt success.

*The Fundus Oculi of Birds*. By CASEY ALBERT Wood, Chicago. Price, \$15.00. Chicago: The Lakeside Press.

This exceedingly fine volume, or possibly it would be better to speak of it as an atlas, is a study in comparative anatomy and physiology. It especially deals, as the title sets forth, with the fundus oculi of birds as viewed by the ophthalmoscope. There are 145 drawings arranged throughout the text and 61 beautiful colored plates. Altogether it is a work to be proud of both from the author's and publishers' point of view. From ours, it is indeed a work of beauty and a pleasure to read and behold.

*The Surgical Clinics of Chicago*. Philadelphia: W. B. Saunders Company. Canadian Agents, J. F. Hartz Co., Toronto.

This is No. 2 of Volume I., and has 99 illustrations. It deals with many interesting subjects, contributed by well-known surgeons.

# Dominion Medical Monthly

And Ontario Medical Journal

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Vol. XLIX.

TORONTO, NOVEMBER, 1917

No. 5

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## Original Articles

### PUBLIC HEALTH IN AVERAGE TOWN

BY C. A. PATTERSON, M.D.C.M., M.O.H., FOREST, ONT.

*Mr. Chairman and Gentlemen.—*

When Doctor McCullough wrote to me asking me if I would give a paper at this convention, I was indeed very glad that he left me my choice of subjects. In past years we have heard numerous papers by health officers of various cities, stating how they controlled communicable diseases, preventing their spread throughout the community; they have told us how they carried on public health work, etc. All these have been most useful to us all, even if we could not follow their methods entirely, for while they have considerable money at their disposal, and while they have competent sanitary inspectors and competent public health nurses, the average M.O.H. has none of these; consequently I chose my subject not from any viewpoint of being able to enlighten you as to any better methods of conducting your public health work, but more because I hoped that by bringing before you the work we have accomplished in my own town, and can be carried out with a little persistence in any town, we might all profit by any discussion arising from my topic and possibly obtain some points that would be of service to us in our own individual communities.

In larger cities, such as Toronto, the health officer, while he has his troubles, has nothing to fear in carrying on his public health work. He orders a certain thing done and sees to it that his orders are carried out. He has almost perfect control over his food and milk supplies. He has perfect control over communicable diseases in the way of isolation hospitals, etc., especially from the point of view of the average health officer, and they can produce results in ways and means that we can not. In the smaller towns we have to go very slowly; the people do not respond to public health matters as they do in the cities. A great many of the residents of our smaller towns are retired farmers living on

a small amount annually, and are content to go along in an easy way and resent any outside interference. They object to anyone telling them they must do this or they must do that, as the case may be. So first of all we must do our best to educate these people in public health matters. The majority of them are ready to tell you that their fathers before them lived without doing any of the present-day things called for by public health, and died at the age of one hundred or thereabouts, and they guess they can do the same.

Now education, in no matter what form or for what it is given, is necessarily slow work. This can best be carried out, I find, along the following lines:

(1) By lectures or talks to Women's Institutes or other women's societies. This can be easily accomplished. A word spoken to the president of your society, that you would be pleased at any time to give them a paper on some subject of interest, will, as a rule, obtain for you an invitation to be present at one of their meetings, where you will find a fairly representative audience composed of business women, school teachers, Sunday-school teachers, housewives, etc., and as women, once you get them started, will stay with an idea, you can be assured of reasonable support. In my own town I am asked each year to speak to the Institute and give a synopsis of the Public Health Convention and any new ideas that are brought up, which I do, putting things before them in as intelligent a form as possible, and generally end up by applying the subject to our own community. Personally I have very generous support from the Women's Institute. Doctor Hastings issues a "Public Health Bulletin," which I receive regularly, and which after reading I hand over to the Women's Institute, and any special part I wish read, I mark it. These pamphlets are of benefit to the members and help bring public health matters to their attention.

(2) A second form of general education is the St. John's Ambulance Association. Last year we arranged for two courses of study in the St. John's Association. Classes were formed and I gave lectures in first-aid, and, through the Women's Institute, a graduate nurse was procured who gave instructions in the home nursing class. In giving these lectures and in examining the classes, you can instruct them along public health lines. Through the stress of Red Cross work and war work we have not continued these classes, but hope to complete the other two courses in sanitation and hygiene. I also hope to be able to form classes among the boy scouts. If you can get interest once established in this work, you will find things will work out very favorably.

(3) Thirdly, we have our provincial aids. From the Provincial Board we have the public health lectures and pictures given each year by the district representatives. It is up to the health officer of each town to give this his whole support and see to it that it is well advertised in order to assure a good attendance, and it is a place where local matters can be dealt with either through your district representative or by yourself. Public health talks are given from time to time by Doctor McCullough in the local newspapers. If your paper is not receiving these articles and publishing them, see to it that they do so. Then there are numerous bulletins and publications sent out at various times by the Provincial Board which are of great value to every M.O.H., and will give you many good ideas which you can work out in your own community. After you have read these do not destroy them; pass them on to some one else interested in town welfare. You never know just how much good they may do. Just here I would like to suggest that the Provincial Board issue a monthly pamphlet dealing with contagious diseases and how to avoid them, and with sanitary matters in a concise and readable form for public school use, and that a certain number of these be forwarded to each health officer, and that they see to it that these papers are read by the teachers of schools to the children, also by the superintendents of Sunday schools, etc. The copies required could be either sent direct or through the M.O.H., to be given to each school or organization, and would go a long way toward pushing forward the matter of public health, for it is children of to-day that make the citizens of to-morrow.

#### GENERAL SANITATION IN THE SMALL TOWN.

(1) Street cleaning. A great many small towns make no attempt at street cleaning, while a great many sprinkle their streets in summer to keep down the dust, which is as far as they go. Two years ago we procured waste cans and placed them at various corners and had notices inserted in the papers what they were for, etc. They were used, and people spoke of the difference in the look of our streets, not considering the sanitary part of it. Before fruit peelings, papers, etc., were thrown promiscuously about the street; since that they have not been so much, and for those who continued to do so we had a man go over the streets a couple of times each week and pick up all fruit peelings, papers, etc., and empty the cans. This worked very well for the first year, when the council objected to it costing them a small sum per week, so I took the matter up with the Women's Institute, and the second year they took over the care of this and procured two boys

to look after it. I found this better than to try and force the council into something they were not quite willing to do. This year I hope they will look after the streets without any trouble, as I think they understand it better.

Regarding refuse, garbage and manure, etc., we sent out notices to everyone keeping animals, notifying them of the regulations regarding manure, and had the satisfaction of seeing a great many people erect suitable places for keeping it. We did not force anyone and found very little opposition. In some instances second notices had to be sent and the matter explained. As regards night soil, outdoor closets, etc., each year we are getting rid of outside closets, people are either putting in suitable chemical closets or else are establishing septic tanks with their own water systems. Not much can be done along this line, as we have no public waterworks or sewerage system. Before the war broke out we were agitating for sewerage and waterworks, but owing to the war this has been dropped and I hope will be taken up again when the war closes. I think every town, no matter how small, ought to have a proper waterworks and sewerage system. As to the removal of nightsoil, we simply live up to the health regulations regarding that and have a couple of men who look after the work, and all closets are cleaned as early in the spring as possible, and those who object to having them attended to, we simply tell our men to go ahead, and if the people refuse to pay for it, the council does so, and the expense is charged up against the property with the taxes. In this way it is easy to see that all closets are attended to, and the matter is not left to the people themselves, to be done haphazardly or not at all.

#### FOOD INSPECTION.

Along this line there should be no trouble whatever. We have no trouble regarding this now: Some time ago our slaughter-houses were in bad shape and very unsanitary, but last year we had the satisfaction of seeing a fine cement-block slaughter-house erected just outside the town by our local butcher, and it is thoroughly up to the mark. It was built under the direction of the Board of Health, and our butcher is very careful of all meat sold. It is inspected by a veterinary and we are assured of good meat. The same applies to our dairies. We have two milk routes, one of which last year established a bottle system and erected a sanitary cement-block dairy with all requirements for keeping and cooling milk and cream and where all bottles, utensils, etc., are kept and looked after, nothing being taken care of outside of this building. His stables and surroundings are in good shape, and

he has in his dairy an abundant supply of fresh spring water for use. We have a creamery in town which is rated by the inspector as A1. Every little while I take a sample of the milk and have it tested and filtered for sediment. The lowest test we have yet had was 3.3 butter fat and a very minute quantity of sediment on filtering. Regarding food in stores, etc., it is a matter of trying to keep everything as sanitary as possible, and nearly all food displayed outside of stores is kept in glass cases built for that purpose. I may say anything we have accomplished regarding food for sale, we have done so by simply personally talking to the party concerned, explaining the why and wherefore and how it is to his advantage as well as to others, and generally get what we want without any trouble. I am personally against using force or going to extreme measures to procure anything without absolute necessity, and that necessity very rarely arises. It was discovered rather early in public health administration that coercive laws were largely ineffective. Education is the basic requirement, and can be best conducted by personal interviews.

#### COMMUNICABLE DISEASES AND SCHOOL INSPECTION.

When we consider communicable diseases, we must also consider school inspection, as the two are inseparably connected. In an epidemic of any sort, measles, scarlet fever, diphtheria, etc., nine-tenths of the trouble originates from contact of school children with each other, and as a consequence some measure ought to be taken to control the spread of these diseases from a carrier to others. There are various quarantine laws, etc., for preventing spread, but they do not get to the root of the trouble. It can only be done by some means of detecting the disease in the early stages, as once it is established one child may have infected dozens before he is quarantined, and the damage is done before you even know about your case. The only way to do this is by school inspection, and I maintain that no health officer can control an epidemic, or rather prevent one, without school inspection. A graduate nurse trained in this work will detect the trouble on the child's arrival at school, and on suspicion will send the child home, to report either to the health officer or his own physician before he has a chance to infect the whole school, and this helps to nip your epidemic in the bud. Now in cities and large towns school inspection is established and has proven itself, and I do not need to deal with the why and wherefore of school inspection, as I think we are all agreed that it should be, but let me rather point out how school inspection can be established and carried on in the small town as well as in the city. Two years ago the matter of school inspec-

tion was brought up in our town, again through the Women's Institute. They receive a government grant for school clinics, and the services of the district officer of health were obtained, and the schools throughout the district were, with the aid of a department nurse, inspected by him. The defects found by him at that time were so numerous that we took up the matter with the School Board with a view to establishing some form of regular inspection. I attended the School Board meeting in conjunction with an executive committee from the Women's Institute and placed the matter of school inspection before them, with facts as to why it should be established. After answering many questions and discussing many points pro and con, the matter was then placed before the board by the Women's Institute committee suggesting that they would pay a trial three months and that it be placed under the direction of the health officer. The School Board accepted the proposition and a room was fitted up in the school and a trained nurse procured who was to conduct the inspection at least once per month for a trial. We sent our nurse to London, where she went to the schools there and accompanied the school nurses in their work and inspection there, and when she returned we had our first inspection. The first few times I was present and assisted the nurse, but left it mostly in her hands. People were quite delighted, and some follow-up work was done and visits to the home made by the nurse and advice given. One of our dentists offered his services in any way he could be of use, with the result that a dental clinic was arranged for and numbers of children who were unable to have their teeth attended to were looked after, either free of charge or at a nominal fee. When our trial was over we continued our work and are still continuing it, partly under the Women's Institute and partly under the School Board. We have just made a good start. What we would like to do is to get a few of the country schools around us to take the matter up and thus give the nurse enough to do to keep her full time. We tried to do this, but as yet have found considerable objection from the country schools, and this is where I think the rural M.O.H. should work with his neighbor in the immediate towns for the betterment of all concerned. The plan as we carry it out is that all children are advised by the nurse, in so far as she can do so, in sanitary matters, bathing, care of the teeth and hands, etc. Any matter that comes up that is beyond her control she refers to myself, and we give a card to the child referring him or her to his family physician for attendance. After a child has been out of school, we do not allow any of them to return to school without a certificate from the M.O.H. that child can safely do so; thus the M.O.H. has full control over all condi-

tions and diseases in children of school life, and that is where you get most of your contagious diseases. Where you have school inspection, and where it is under the M.O.H. and he takes an active interest in it, you will find you have gone a long way toward controlling your epidemics. As to closing of schools during an epidemic, I do not think it advisable to do so without you can devise some way of keeping all children off the street and from coming in contact with one another. It is better, I think, to continue school and have your pupils inspected each day for symptoms of the disease and sent home immediately and the matter reported. In this way you will get track of cases that you otherwise would not know of and that would constitute casuals. To bear out what I have said regarding school inspection, I might give you a few instances of the good it has accomplished even on the small scale that we are yet working. Since school inspection has been established in our own town, numbers of cases of enlarged tonsils and adenoids, which, as we all know, predispose to diphtheria, etc., have been operated on and the condition remedied. Nearly all the children who had defective sight have had their eyes attended to and are wearing suitable glasses. Practically all the cases of carious teeth have been attended to. So far we have used no compulsion in having this work done, as we are hardly far enough advanced to do so, but we are getting good results. In Ailsa Craig a clinic was held after a school inspection and Doctor Thompson of London came out there and operated on nineteen cases that needed attention. The expense was met partly by donations. Children operated on were those unable to pay, and those who could pay anything at all gave what they could towards defraying expenses. This merely shows what can be done toward the health of our school children. If you get the right ones interested and the reports of the number daily having been turned down by the army medical men, show the need of doing anything and everything in our power to give every child the chance to become a strong healthy man or woman.

As to troubles, you will have many; difficulties will be placed in your path on public health work not only by the people but by physicians, who should give you their whole support. In my own instance, when I made the rule that no children should be allowed to return to school without a certificate from the M.O.H., some of the other physicians objected and sent in their own certificates. The reason I made the above rule was through wishing to be a good fellow, etc. Some physicians might allow a child to return to school before a M.O.H. would, or might make a different diagnosis and allow the child to return. In case I spoke of, where

certificates were sent in, the principal of school refused to accept it, and the physician wrote to Doctor McCullough about it. I am glad to say Doctor McCullough bore me out, and he did not obtain permission to use his own certificate. I have had no trouble since along that line. In granting certificates hold rigidly to the public health law and show no partiality, and thus avoid trouble. Should you give a certificate to one in a shorter time than another, etc., you will fail in your work, and dishonorably so. I might say here I think it should be made compulsory that all schools, rural and otherwise, be under regular inspection, and until such time as it is a number of rural schools will not have it. A school nurse could be appointed in rural section to have charge of a certain number of schools and give her full time to that work, and she should be placed under the health officer as a public health nurse. There is nothing that I know of that will help a health officer in his work like school inspection. Some of the worst enemies children have from a health point of view, and the ones to which the health officer should pay most attention, are:

- (1) Doctors who do not report contagious diseases.
- (2) Dirty milkmen.
- (3) Flies.
- (4) School teachers who persist in keeping school windows closed.
- (5) Mothers and fathers who expose their children to contagious diseases, believing they must have them anyhow.
- (6) Fanatics opposing school inspection.
- (7) Violators of quarantine.
- (8) Dirty parents in dirty homes.
- (9) Manufacturers of adulterated candies and adulterated foods.

In dealing with any of the above, educational methods are by far the best. I do not think anything is to be gained by force. But if you have to do so, by all means assert your authority. The Texas Health Bulletin is responsible for the statement that it is unfortunate that some children were not born in the barn, so that the head of the family would give them at least the same care he does his stock. Some pigs are registered; some babies are not. Some farmers vaccinate for blackleg in cattle but not for smallpox in children. If the rural health officer would but understand the extent of his authority he would accomplish a great deal more along public health lines than he does at present. The provincial law gives you absolute authority to dictate to any and every person in your jurisdiction on matters of communicable diseases. If you

cannot get what you want by other means, and it comes to a point of bringing an offender against the law to justice, the local health officer should make the complaint and the provincial authorities will back him up. In the matter of a disagreement as to a disease being of a nature to require quarantine or not, or where physicians do not agree as to diagnosis, it is the right of the health officer to establish quarantine until the nature of such disease is fully established. During the scarlet fever season there are in many localities diseases being called "rash," "poison ivy," "buckwheat rash," and many other terms which mean nothing but which allow the patient and his relative to be at large when they should be under quarantine. In such cases you do not have to accept the physician's diagnosis, but should use your own judgment. It does not pay to be careless where contagious diseases are concerned. "It is better to be safe than sorry," is a good rule for the health officer to follow, and will often save much sickness and sometimes the spread of an epidemic. When one assumes the duty of health officer, he should realize that the health laws are there to be carried out in the interests of the community. Read your health laws and require every one in your community to live up to them as nearly as possible. You are not to blame because the health laws are on the statute books, but you are to blame if you are negligent and allow disease to spread through the law being ignored with impunity in your municipality. In closing I might just ask you to pardon so much reference to my own town, but I can only speak for myself. There are, no doubt, numerous men here who have gone a great deal farther along public health lines in the small town than I have, but we can all do only our best. I might just say that while towns around us within a radius of twenty to twenty-five miles have had their epidemics of typhoid, scarlet fever, etc., during the past three years, we have had no cases of typhoid, two cases of scarlet fever, three cases of smallpox, and seventy-seven cases of the measles, most of the latter occurring during the spring of 1916 when they were so prevalent throughout the whole country. The population of our town is approximately eighteen hundred to two thousand.

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Captain Ronald Hugh Macdonald, Winnipeg; Captain R. J. Manion, Fort William; Captain Archibald McCausland, and Captain Ashley Cooper Johnston, Alberta, have been awarded the Military Cross for conspicuous bravery and devotion to duty; also Captains Graham R. Ross, Montreal, and Frank L. McKinnon, Winnipeg.

**MEASLES, ITS COMPLICATIONS AND TREATMENT**

BY DR. A. A. METCALFE, ALMONTE.

It is not my intention in this paper to deal with the etiology, the bacteriology, nor yet the symptomatology of measles in a particular way; but in the limited time and space of a paper of this kind at such a meeting as this it will be possible only slightly to discuss the disease.

In the first place, I might say it is an affection wrongly looked on very lightly by the laity and often too lightly by the profession. I think the best authorities will agree that it is a disease that very few people escape in their lifetime; consequently not having the power within ourselves to produce an immunity from it, familiarity with it should not be allowed to breed contempt for it. This erroneous idea that the laity has of the affection makes it more difficult for the ordinary practitioner in general practice to give it the attention due the disease without being considered to over-visit.

The intensity of the infection of measles makes it particularly prevalent in childhood, becoming epidemic as well as endemic at times, the infant at the breast only escaping it.

It is not so self-immunizing as variola or some other eruptive fevers, consequently we are liable to take it over and over again in a modified form, very often quite difficult to diagnose if it were not for the epidemic. In itself measles seldom kill, but its complications make it a very fatal affection in young childhood.

In my experience the severity of an epidemic of any kind varies largely according to the condition of health of the community attacked, *i.e.*, to say the same source of infection may produce severe cases in the family, ill-nourished and badly-cared-for children, while the strong and robust with good sanitary surroundings are only moderately sick, or scarcely sick at all, although the source of infection is the same. This in my experience applies particularly to scarlet fever. In the latter disease, however, you may have time to prepare some of the household for the disease and thereby convert what would be a malignant case into a mild one. This fact has been established to my satisfaction in practice. If the epidemic came on during the latter part of the winter season, after children have been shut up in badly ventilated houses for a long time, reducing the vitality, you may look out for trouble. Here, it has occurred to me, could some periodic examination of children not be made, and a certificate given as "physically fit," or "unfit."

such as the military medical man is called on to do, and in this way have the health and physical condition of the children brought forcibly to the attention of the parents. The duty of the practitioner, as we have learned by experience, is to guide and direct nature, not to thwart; to abort, to break up, etc., are terms only used by the weak for effect. It is within the power of the surgeon largely to forestall a continued illness. Briefly we might put down the period of incubation of measles from eight to twenty days; the period of invasion three to six days; the period of eruption from four to fourteen days. In some cases a period of discoloration supervenes. The period of incubation we are not usually called upon to treat. Second, the period of invasion is where our skill is first required.

Our desire should be to assist nature to make our case conform to a mild typical one, and neither over-stimulate or delay the appearance of the eruption.

The treatment is, first, hygienic; second, dietetic; third, medical.

(1) Hygienic. Isolate the patient, keeping the temperature of the room around 68 to 70. The former method of bundling up the patient and keeping the air of the room hot and unchanged favors complications to the respiratory tracts. The body of the child may be sponged each day and fresh linen applied. The room, largely for the comfort of the patient, should be moderately darkened.

(2) As regards diet. The digestion is impaired, consequently feed lightly but nutritiously, using liquids only.

(3) Medicine. If the rash is tardy in appearing, a mustard foot-bath; if there is depression, a teaspoonful of spirits minderis, frequently repeated, may hasten the eruption. This usually suffices for the ordinary case. Possibly the temperature may call for drop-dosing, aconite or some harmless antipyretic. The eyes require to be kept free from matter or crusting by bathing with boracic solution frequently, and at bedtime the application of a soothing ointment. If the cough is troublesome I prefer some alkaloids of opium. This leads me now to the extraordinary cases. As I said at the outset, measles seldom kill, but rather the complications; therefore it behooves us to be on our guard, especially in children less than three years' old, to give them strict attention. The high, continued temperature in itself is quite liable to produce nervous symptoms, such as convulsions and restless nerves, but add to this croup, bronchial pneumonia, or true pneumonia. We have a proposition on our hands quite difficult to manage.

*Case 1.*—B. H., one and a half years old, seen on the third day of the rash, with temperature 102, difficult breathing, croupous in character. Inspection and observation convinced me edemic or a croupy condition was most urgent. Intubation was resorted to for a period of six days, and the child made an uneventful recovery. Tubes remained in till temperature subsided.

*Case 2.*—Delicate child from infancy, seen on fourth day of rash. Very rapid, labored breathing, temperature 104, twitching of left eyeball. Examination revealed double pneumonia. Prognosis was immediately given as grave. Hot baths and perspiration encouraged; skin became moist, but temperature remained 104½ twitching of eyeball continued, and imminent danger of convulsions supervened, which were controlled by chloroform. Ice to head had been used from start, but now applied to chest and temperature reduced to 101 and kept there for three days. During most time child seemed much better, but strength gave out and child died. I certainly believe the early use of the cold pack before the eye symptoms set in might have given the child a better chance.

*Cases 3 and 4.*—Two sisters in the same bed. Lagrippe was going in the house. The one developed lobar pneumonia, the other concurrently the measles. Each ran a course of eight days, when the state of affairs was reversed and the one developed pneumonia; the other measles. Both recovered within a small margin. These children were aged about eleven and thirteen. Both had rusty sputum, not excessive temperature. Both had tenderness of the abdomen.

*Cases 5 and 6.*—Brother and sister. Influenza prevalent in the house. I was called to see the elder, fifteen years old, and diagnosed measles with lobar pneumonia. The younger, the girl, was up but still with a distinct rash of a bluish-red color under the skin. I warned the parents to look after the girl, but instead she helped the next day hang out some clothing. Next day, when I went back, she complained of pain in her side with increased cough. The following day while I was in the house she took a slight chill. I diagnosed pneumonia, and the rusty spit developed in three days. The two cases were in the country, and I was successful in securing two trained nurses to assist. The delirium was marked in both cases, and in spite of all we could do the temperature ran high, 104 to 106, without a remission during the twenty-four hours. On about the fourth day ice bags were applied to the boy till the crisis came, and also to the girl during the last four days of her trouble. Both cases were complicated with diarrhea and ear trouble, with great deafness. Both made good recoveries.

Although I had attended them for two weeks twice a day, neither remembered me making more than two visits. This I take to show the great stress of the temperature on the brain. The cases have more than ever convinced me of the supreme benefit of ice in preference to hot baths or antipyretics, especially during the last four days of a pneumonia or any other troubles where the temperature is continuous during the twenty-four hours from 104 to 106. I might say I had already had good results from the ice treatment in uncomplicated case of lobar pneumonia. One case of measles that came under my notice was in a patient that had pleurisy previously. Tuberculosis was the sequel. Another interesting case was in a patient with Bright's disease. The rash was a bluish-red of a hemorrhagic type and remained visible for five weeks.

The last case I will cite was a perfectly typical case of measles, but finally desquamative as abundantly as any case of scarlet fever.

In conclusion, I might remark if only the epidemics occurred at the right time of the year and were confined to subjects of proper age and conditions of health we would have very little trouble with a disease the great bulk of the greatest authorities say we are bound to have some time or other during our lifetime. But by all means the public generally should be educated to the great danger of, and the high mortality of, the disease in infancy.

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The stork at eve had filled his sling,  
When chanced a coon on Hogan's sill:  
Within her midnight birth she laid,  
And stole away into the shade.  
Poor Hogan nearly had a fit,  
And said he would not harbor it.  
But then, some storks will have their fling,  
Though Hogan swore she'd had a chill.

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DOCTOR VERSUS LAWYER.—A doctor and a lawyer, patients in a hospital for the insane, were about to be discharged as cured. Accommodation being short, they were given the same room to sleep in the night before their discharge. When the attendant came in the morning he found the doctor sitting on the edge of the bed. He was doubled up with laughter. The attendant, horrified, asked him the cause of his merriment when he replied: "Last night I cut Bill's head off and threw it under the bed, and I was just thinking what a h—of a good time he'd have in finding it this morning."—*The Writer's Book*.

## Reviews

*Urology: Diseases of the Urinary Organs; Diseases of the Male Genital Organs; the Venereal Diseases.* By EDWARD L. KEYES, JR., M.D., PH.D., Professor of Urology, Cornell University Medical College, etc. With 204 illustrations in the text and eighteen plates, four of which are colored. New York and London: D. Appleton & Company.

In the present day, when there is such a harvest of venereal diseases, and consequent complications of a urologic character, a book which is modern and embraces the most recent advances on the subject is a timely one. The author has discharged his task with marked ability and has given, especially to the general practitioner, a helpmate of decided value. There are many and varied illustrations; and the fact that the present volume is founded largely on clinical experience adds to its worth. We heartily recommend it.

*The Practice of Surgery.* By RUSSELL HOWARD, M.S. (Lond.), F.R.C.S. (Eng.), Surgeon, Poplar Hospital; Assistant Surgeon, London Hospital; Joint Lecturer on Surgery, and Teacher of Operative Surgery, London Hospital Medical College; author of "Surgical Nursing," "The House Surgeon's Vade-Mecum," etc. With eight colored plates and 523 illustrations in the text. Toronto: The Macmillan Company of Canada, Ltd; London: Edwin Arnold.

Text-books for medical students are often too elaborate, and again, altogether too meagre. The author of *The Practice of Surgery* seems to have hit upon the happy medium, and has given us a book of excellent practicability. Not only is pretty nearly every surgical affection nicely and newly illustrated, but a clear and succinct text predominates throughout the book. The student will find each chapter understandable, and will be glad to learn that two essentials in the successful practice of surgery, namely, diagnosis and treatment, are treated of a little fuller than other matters. In a text-book of surgery, emergency treatments call for clear enunciation, for that is what counts with the young surgeon. Herein is found practical law in that regard. That it is right up-to-date, too, is assured in many directions, though radium does not seem to be much advised; and it is now pretty well established radium may replace the knife to advantage in certain skin carcinomata, especially in the earliest stage. We believe this book will prove a favorite with medical students for some years to come, and will be of splendid benefit to general practitioners.

# Dominion Medical Monthly

And Ontario Medical Journal

EDITED BY

**Medicine:** Graham Chambers, R. J. Dwyer, Goldwin Howland, Geo. W. Ross, Wm. D. Young.

**Surgery:** Walter McKeown, Herbert A. Bruce, W. J. O. Malloch, Wallace A. Scott, George Ewart Wilson.

**Obstetrics:** Arthur C. Hendrick.

**Pathology and Public Health.** John A. Amyot, Chas. J. C. O. Hastings, O. R. Mabee, Geo. Nasmyth.

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**Anesthetics:** Samuel Johnston.

GEORGE ELLIOTT, MANAGING EDITOR.

Published on the 20th of each month for the succeeding month. Address all Communications and make all Cheques, Post Office Orders and Postal Notes payable to the Publisher, GEORGE ELLIOTT, 219 Spadina Road, Toronto, Canada.

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Vol. XLIX.

TORONTO, NOVEMBER, 1917

No. 5

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## COMMENT FROM MONTH TO MONTH

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**Oleomargarine**, sometimes referred to as margarine and butterine, was invented by a French chemist in 1871. As it is manufactured to-day—the information is obtained from a reliable source—it consists of 40 to 45 per cent. beef or Oleo oil, 20 to 25 per cent. lard, and 10 to 30 per cent. butter, milk, or cream. Sometimes vegetable oils, such as cotton-seed oil, are added. The mixture is then churned at a temperature above the melting point, then chilled, salted, worked, etc., very much as butter is. On this continent it is largely an American, or United States, product and, under law, the use of coloring matter is entirely forbidden, severe penalties being provided for any infringement of that law. All oleomargarine shall be plainly labelled according to law; nor shall it be sold as a substitute for butter. When used in hotels, boarding-houses, etc., the fact must be made known by posting announcements to that effect. Claims, on the part of the manufacturers, are to the effect that the product is equal to the finest dairy butter. Its purity, nutritive value and wholesomeness are claimed to be superior to the cheaper grades of butter. Both chemists and scientists have substantiated those claims.

**Continence is the One Remedy**, according to Secretary Daniels, speaking before the Congress of Clinical Surgeons in Chicago, for the menace of venereal diseases. He is correct; but the preaching in the mart, the home, the school, the church, the military and naval circles—the universal education—will take a long time. The menace requires something more, and of quicker action. Venereal diseases can no more be swiftly eradicated by such preachments than can the combative instinct and the reproductive instinct: man will sneer so long as he develops a canine tooth. A remedy which will act promptly is what is required—and in no better way can that remedy be established than through legislative enactments. Wide powers must be given immediately to medical officers of health for, wherever medical officers have been given wide powers, something has been done. Educating the people is a slow process, and, indeed, it is a slow process, very slow, educating even legislators. In an editorial article in the *New York Medical Journal*, appear these words: "For the man who knowingly infects an innocent girl there should be some punishment." The mere ostracism of the social leper is not going to meet the contingency, even though the libertine can always be detected. Shrieks, yells, and cat-calls must not be permitted to take the place of sound sense and determination. The fight will not be to blind frenzy and ferocity, but to cool, sober, scientific judgment and resolution. The man who would not speak to his tainted fellow-man on the street, in the club, the church, elsewhere, would be a lonesome and forlorn figure, not that there are not many moral men, but that the moral man, the good man should exercise his morality for the betterment of his fellow-man.

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**Medical Students Should be Conserved.** President Wilson found a way to prevent the withdrawal of them from their studies; and in Canada, where our supply is not plentiful, medical students, when applying for exemption, should receive the best consideration. It will not do to deplete the medical colleges of Canada for a battalion or two at the outmost. The needs of Canada are in many quarters urgent for medical skill and attendance. The young and the physically fit must do their bit either at the front or in the country districts. He is well serving his country who recognizes the necessities of outlying communities in Western Canada as elsewhere.

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# ACETOPHEN---

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## News Items

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Dr. Edmund E. King, Toronto, attended the Congress of Clinical Surgeons in Chicago.

Major Donald MacGillivray, who is home in Toronto from Saloniki, is rapidly recovering his health.

Lieutenant-Colonel W. J. O. Malloch, Toronto, is now surgeon-in-chief, Ontario Military Hospital, England.

Captain Brefney O'Reilly, Toronto, has gone as medical officer with the Canadian Aviation Corps to Texas for the winter.

Major D. W. Whitton, medicals, has been appointed to command a hospital ship, replacing Lieutenant-Colonel D. Donald.

Lieutenant-Colonel E. J. Williams is appointed to command the Canadian Hospital at Hastings, replacing Lieutenant-Colonel H. E. Munro.

Dr. W. D. Brydone-Jack, Vancouver, B.C., has been appointed superintending engineer of the Public Works Departments of Manitoba, Saskatchewan and Alberta.

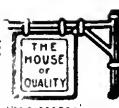
Major Andrew Maephail, M.D., Montreal, editor of the *Canadian Medical Association Journal*, is returning to Canada after two and one-half years' service overseas.

Lieut.-Colonel H. R. Casgrain, Windsor, Ont., is now in command of the French-Canadian Hospital at St. Cloud, France, while Lieut.-Colonel Label, who was in command, will probably return to Canada.

The graduating class of '92-'93 University of Toronto medical faculty will hold a re-union in Toronto on the 15th of November. The house surgeons of the Toronto General Hospital of that date will dine in the York Club the evening of the fifteenth.

Lieutenant-Colonel Thomas Bedford Richardson, Toronto, who has been for several months medical officer to the British-Canadian War Mission in Chicago, has been appointed on the staff of the Pension Board at Ottawa. The appointment will likely be a permanent one.

Mr. Horace L. Brittain, Ph.D., of the Municipal Research Bureau, Toronto, has been appointed Superintendent of the Toronto General Hospital for one year, with Dr. Charles K. Clarke Medical Superintendent. The Hospital has been running behind to the extent of \$4,000 a month.



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## Publisher's Department

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**CONVALESCENCE FROM THE EXANTHEMATA.**—The first two or three months of the year are usually characterized, in the experience of the family physician, by the occurrence in his practice of a crop of cases of the contagious diseases of children, especially scarlet fever, measles, German measles, etc. This is accounted for by the readiness with which contagion is spread in the schools, when ventilation of the school room is the least perfect and the closer housing of school children during school hours favors the distribution of communicable diseases. As the diseases in question are self-limited in nature, expectant and symptomatic treatment, together with precautions as to isolation, etc., is about all the physician is called upon to direct. It is well known, however, that in all but the mildest cases, the adolescent subject of scarlatina, or measles, is usually more or less debilitated or devitalized, when convalescence is established. Special care should be taken to avoid the administration of any tonic or reconstituent which is likely to disturb the child's digestion or, by inducing constipation, to minimize the appetite or desire for food.

Pepto-Mangan (Gude) is the ideal reconstructive tonic for these young patients, because it is pleasant to the taste, easily tolerable by the stomach and readily assimilable by blood and tissue and promptly efficient in restoring appetite, strength, color and general well-being.

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**THE PHILOSOPHY OF THE ACTION OF SANMETTO IN GONORRHEA** may be explained in this way: sanmetto has no direct germicidal action in the treatment of membranous conditions due to the invasion of the gonococci. It should be borne in mind that sanmetto does not directly destroy gonococci. Whatever may be its direct action upon these germs, it is certain that it does not have any such directly germicidal influence. What it probably does is to set up in the mucous membrane a reaction to the inflammation, or a nutritive toning up of the parts, which brings to the parts a sufficient reinforcement of leucocytes to overwhelm the germs—the gonococci. This view of the action of sanmetto explains the apparent aggravation which sometimes is set up in the treatment of chronic inflammation of the bladder and urethra, and a consequent

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sloughing off of shreds and purulent matter, causing the patient to think the sanmetto has made his case worse, but which really is but the smoke of the battle in which sanmetto is to be the victor and the gonococci the vanquished.

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### ANTHRAX AND SHAVING BRUSHES

The Local Government Board has published a report by Dr. Francis Coutts on an inquiry into cases of anthrax suspected to be due to the use of infected shaving brushes. Most of these were cases of external anthrax, but in a few the disease seemed to be generalized from the onset. In nearly every case the lesion was situated in the shaving area of the face and neck. Suspicion fell at once on the shaving brush, and in some of the brushes examined living anthrax bacilli were found. In an early case investigated by Dr. Elworthy the infection was clearly proved to be due to the use of a recently purchased cheap shaving brush of imitation badger hair with a bone handle. Virulent anthrax spores were found in this and in several unused brushes of the same pattern purchased from the same shop. All the brushes were traced back through the tangle of trading arrangements to one wholesale dealer and were found to have been manufactured in a single factory. Dr. Coutts, in association with Dr. Collis, of the Home Office, showed that the bristles used in making these shaving brushes consisted for the most part of Chinese horsehair, posing as goat's hair, which had not been disinfected before being manufactured into brushes. The remaining unmanufactured hair from the same source was found to be largely infected with anthrax spores. Dr. Eastwood is still investigating the precise conditions which must be fulfilled to ensure sterilization of horsehair, and the Local Government Board is considering what administrative action is needed to secure that hair used in the shaving brush industry is satisfactorily sterilized before manufacture. As four further cases of anthrax were traced to brushes of foreign make it will be necessary also to secure that imported brushes are similarly free from infection. Dr. Coutts's interesting report shows that although the danger of anthrax from infected shaving brushes is limited in extent, it constitutes an appreciable risk which ought to be removed.—*B. M. J.*

# Dominion Medical Monthly

And Ontario Medical Journal

Vol. XLIX.

TORONTO, DECEMBER, 1917

No. 6

## Original Articles

### SURFACE ANATOMY OF THE STOMACH

(*The Umbilico-Mammillary Triangle.*)

By GEORGE ELLIOTT, M.D., TORONTO.

Heredofore anatomists have entirely overlooked and have, consequently, failed to describe the most prominent and conspicuous triangle on the surface of the human body, namely, the Umbilico-Mammillary Triangle.

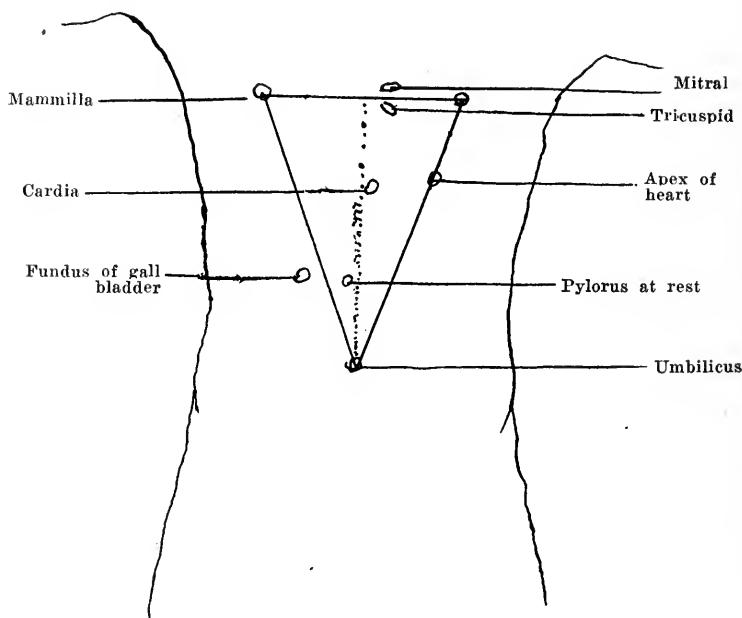
This triangle is readily perceived in the accompanying diagram; its base, the line between the two mammillae; its apex, the umbilicus; its sides, the lines connecting the umbilicus with the right and left mammilla respectively. A search in Quain's Dictionary of Anatomy, Gray, Morris, Cunningham, Sobotta-McMurrieh, Toldt; Gould's, Dorland's, Lippincott's, Stedman's dictionaries, reveals no mention of it whatsoever.

In studying the landmarks of the apex of the heart, mitral and tricuspid valves, the cardia, the pylorus, fundus of the gall-bladder, as well as the locations of the incisions for the various operative procedures on the stomach, duodenum, and gall-bladder, the student is apt to become rather perplexed over these surface markings. There is no one outstanding picture before his mind's eye; and his memory is, therefore, taxed almost beyond conception to retain important clinical knowledge which, as at present, is located in relation to costal cartilages, umbilicus, mammillae, etc.

If, then, the apex of the heart, the mitral valves, the tricuspid valves, the cardia, the pylorus, the fundus of the gall-bladder, the relation of the stomach behind the Triangle, the portion of liver behind it, the pancreas, and all the incisions necessary in operations in this region can be grouped in relation to the Umbilico-Mammaillary Triangle, the student will have presented to him a clear clinical picture of this very important region.

*Apex of heart.* Ordinarily, the apex of the heart is given as one and one-half to two inches below the left papilla mammae and one inch to the right of that point. This is between the fifth and sixth ribs. To be more exact, it is one-fourth the distance down the left line of the Triangle from the papilla mammae of that side.

*Mitral valves.* The mitral valves, the deeper placed, lie behind the third intercostal space, about one inch to the left of the sternum,



i.e., just above the base line of the Umbilico-Mammillary Triangle, to the right of the central point of that base.

*Tricuspid valves.* The tricuspid valves are situated behind the sternum, on a level with the fourth costal cartilage. These may be pictured in the angle of the left half of the base line with the perpendicular line running to the apex at the umbilicus.

*The cardia.* Usually the cardiac orifice of the stomach is located just to the left of the middle line of the body, and below the junction of the seventh costal cartilage with the sternum. Approximately, it is one-third the distance down from the middle of the base line of the Triangle, and a little, say, one-half inch, to the left.

*The pylorus.* Cunningham locates the position of the pylorus as follows: "Its average position may be marked on the surface of the body by the intersection of two lines; one drawn horizontally half way between the top of the sternum and the pubic crest, the other drawn vertically a little way ( $\frac{1}{2}$  inch, 12 mm.) to the right of the middle line. When this is measured it will be found that the point of location of the pylorus is one-third the height of the Umbilico-Mammillary Triangle, measured upwards from the apex at the umbilicus—then a finger's breadth to the right of that point. Behind lies the pylorus in the quiescent condition of the stomach.

Radiographers, recording their observations after test meals, state that they have demonstrated that the stomach is more or less J-shaped (sock-shaped), and almost entirely to the left of the middle line. The lowest portion reaches to about the level of the umbilicus. The pylorus is said by them to be perhaps an inch higher, and slightly to the right of the middle line. As the middle line of the body and the line of height of the Triangle correspond, the pylorus would seem to have a range of movement on the right of one-third the distance up from the apex to the base, down almost to the apex itself, according as the organ is quiescent or active.

*Gall-bladder fundus.* The fundus of the gall-bladder in relation to the surface is known to vary considerably. Generally it is located by placing the finger on the tip of the ninth costal cartilage, where it lies between that structure and the outer border of the rectus abdominis muscle. On the right line of the Triangle, one-third the distance from the apex, the gall-bladder fundus can practically and quite approximately be located, about one inch to the right, or outside that line.

The stomach can, therefore, be pictured lying behind the left half of the Triangle; the fundus taking a sweeping curve up to, and just below, the apex of the heart; the lesser curvature, curving down to the pylorus, with its concavity to right, and lying almost wholly in the left half of the Triangle; the greater curvature curving to the left downwards to, or a little below, the umbilicus, but running outside the left line.

As the pylorus lies under the liver, the lower border of the latter may practically be located at that point—one-third the height of the Triangle, up from the apex at the umbilicus.

The pancreas may be pictured as lying deeper than the stomach, crossing the apical third of the Triangle.

**IN MEMORY OF THE FATHERS AND MASTER-MINDS  
IN MEDICINE**

BY JAMES S. SPRAGUE, M.D., BELLEVILLE, ONTARIO.

“ It is fitting that we should follow the admonitions of Ecclesiasticus and praise famous men and the Fathers ” (in Medicine) “ who begat us,” for, “ out of olde feldes, as man saithe, comith all this newe corne from yere to yearn ; and out of olde bookis, in good faithe, comith all this newe science that men learn,” said Chaucer.

TITLE OF MEDICAL THESIS, A.D. 1693.

DISPUTATIO MEDICA INAUGURALIS  
PRO GRADU DOCTORIS

DISSERTATIO

DE

MOTU SANQUINIS PER

VASA MINIMA,

QUAM

AUSPICE

DEO,

ET

PRAESIDE

D. ARCHIBALDO PITCARNIO,

M.D. & ILLUSTRI ACADEMIA LUGD. BATAV.

MED. PROF.

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CAROLI SECUNDI ARCHIATRO ET MEDICINAM RECTE ET INGENUE  
EXERCENTIUM PATRONO. TYROCINIS SUA MEDICA DICAT G.H.

Dissertationem hanc non ingratam  
Tibi fore confido, in qua agitur  
de re magni momenti cujusque  
utilitatem tu optime novisti  
Eam ego hic defendendum sub  
Collegae nuper tui praesidio  
suscepi Foelix, si tuo otiam  
praesidio Praxin Haec aut his  
Meliora illustraturam institurero  
licuerit. Interea vitam  
quam plurimis facis longam  
Tibi optime meronti longissimam voveo.

A Latin writer once said: *Ex rebus antiquis eruditio oratur* (From ancient things may culture come), *Optime Consillarii Mortui* (The best counselors are dead), and yet—

“We think our fathers fools, so wise we grow,  
No doubt our sons more wisely grown will think us so”;

however, a study of *Religio Medici*, by Sir Dr. Thomas Browne, *Anatomy of Melancholy*, by Burton, etc.—even of the *Bible*, will, from “many silly notions free” you and me.

This thesis relates to the circulation of the blood through the small blood vessels, and such theses were demanded by Oxford, Cambridge, and continental universities. Of those who were given M.D. and, too, the M.A. degree in those days was required for medical matriculation. It is written in the Oxford lore that the applicants for D.D. were few, as the ecclesiastical synods and faculties in theology guarded well such an exalted distinction. Differing markedly is the obvious rulings in many of our modern churches—much removed in learning since the Council of Trent—and the Doctorate attached to Reverend, too often has been purchased from a cheap or clandestine Degree Mill, Room No. 10, 4th flat, in fact, now and then given to clergymen by sectarian colleges teaching theology, whereas the older churches, then and now, only secured D.D. for their bishops or others very eminent in their ranks. The Reverend Doctor, unless from the State University or other university, or such colleges or institutions as Victoria or Trinity in Ontario, is really a bird with cheaply-borrowed plumage.

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## TREATMENT OF CHRONIC BRIGHT'S DISEASE\*

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By J. M. ANDERS, M.D., LL.D.,

Professor of Medicine in the Post-Graduate School of Medicine of the University of Pennsylvania.

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There are two principal criteria which should serve to guide us in the treatment of chronic Bright's disease. They are the general condition of the patient as it is influenced by the progress of the affection, and the rate of metabolic excretion as determined by modern methods of examination. We should also pay due regard to the results of clinical and microscopical studies of the urine, although

\*Read before the American Therapeutic Society at New York City, June 1, 1917.  
Reprinted from *The Therapeutic Gazette*.

in my experience both albumin and tube casts have, at times, shown a tendency to increase under a judiciously restricted diet on the one hand, and to remain uninfluenced by a pretty generous diet on the other.

Without stopping to attempt to remove the touch of vigorous professional confidence in the percentage of albumin and the number and variety of tube casts as an index to the severity of the morbid process, and making it the foundation for prognosis and treatment, I feel that we have depended too exclusively on this somewhat uncertain standard in the past.

I propose considering the two criteria mentioned above for a moment separately so far as practicable, believing that most light may be thus thrown on the present-day means of dealing with this important disease.

*The Rate of Metabolic Excretion.*—This must be gauged by the most modern and approved methods. The amount of urea excreted in the twenty-four hours is an indication of the outcome of the case, and should be carefully and repeatedly estimated.

Among the substances excreted with great difficulty by a diseased kidney is creatinin. In this connection it is of great interest to note that Myers and Lough have shown that an estimation of the blood creatinin is of prognostic value—e.g., over 5 mg. per 100 Cc. of blood having invariably terminated fatally in from a few days to two months, while figures from 3 to 3.5 mg. are to be regarded as decidedly unfavorable. It is essential, therefore, that substances which, like urea, creatinin, pigments, hippuric acid, and phosphates, are excreted with difficulty should be allowed in minimal amounts in Bright's disease. To avoid the ill-effects of phosphoric acid, Von Noorden<sup>1</sup> recommends that calcium carbonate be added to substances containing it.

The test meal for renal function probably gives the earliest evidence of diminished kidney efficiency. Mosenthal and Lewis<sup>2</sup> hold phenol-sulphonephthalein excretion and Ambard's co-efficient are tests which enable one to follow most minutely the progress of renal disease.

*The General Condition of the Patient During the Progress of the Disease.*—While seeking to afford protection to the diseased kidney by extreme moderation in diet, especially in proteins, due attention is to be paid to the matter of avoiding deleterious effects to all other organs—to the metabolism. The strength of the patient is to be preserved by adapting sound hygienic, therapeutic, and dietary principles to the individual case.

Extremes of mental and bodily activity are to be avoided and the habits and mode of life of the patient regulated, the aim being to maintain the nutritive equilibrium, without producing irritation of the renal epithelium. All noxious substances entering into the etiology must be avoided and removed as far as possible. Primary foci of infection, e.g., in the teeth and tonsils, should receive particular attention. By diminishing or removing such irritants as uric acid, alcohol, lead, and the like, the cardiovascular system is also conserved—a point of vital importance. The co-operation of the patient is always necessary to the end that the directions given shall be carried out persistently and faithfully.

The value of a change of residence to a warm, dry, and mild climate, in many cases of the chronic interstitial form of Bright's disease, is undoubted. The variability and humidity of temperate climates, particularly during the winter, are aggravating factors in this disease, while a sea voyage or a sojourn at some resort where the soil is dry and sandy and the climate warm and equable may be highly beneficial.

*Diet.*—The chief control of chronic Bright's disease resulting from treatment is found in diet, coupled with the foregoing suggestions pertaining to the mode of life, rather than in drugs. The dietary restrictions should be both quantitative and qualitative. I quite agree with Shattuck<sup>3</sup> that a varied diet is more likely than a monotonous one to promote the making of good blood and improving the general nutrition, and that of the myocardium in particular.

An excess of protein, which is always harmful, can be avoided only by a close study of the functional capacity of the kidney at short intervals of time, and the repeated estimation of the urea and creatinin content of the circulating blood. By pursuing such a course it is found that oftentimes greater latitude may be extended without injury to the sick kidney, and thus aid decidedly the general metabolism. In this connection the view of Foster and Davis,<sup>4</sup> to the effect that in cases in which there is no great amount of edema we must allow considerable water, the while we diminish the protein intake, in order to eliminate the solids and retained nitrogen, is sound and to be adopted.

On the other hand, when dropsy of a more marked degree is present, the fluid intake should be restricted to a total daily amount not exceeding one liter. In this class of cases, composed largely of instances of chronic parenchymatous nephritis, a salt-free, or

what is more practieable, a salt-poor, dietary is a most useful adjuvant to efforts at removing the edema.

Whilst whole milk should make up a considerable portion of the diet, Von Noorden has pointed out that milk contains on the whole too much protein, and recommends that it should be restricted to three pints a day, to which a pint of cream should be added. The writer has found skim-milk and buttermilk, in appropriate quantities, of signal value in cases in which dropsy is marked.

Recently, Terwaert and VanLier<sup>5</sup> have put forth the claim, based on their experiments and clinical experience, that restriction to a milk diet in cases of nephritis with retention of urea is decidedly harmful.

In general a mixed diet will be of advantage: proteins in quite limited amounts,\* greens, fruits (especially fruit juices), pure fats, and light, well-cooked farinaceous dishes and cereals (except oatmeal) may be allowed. Cocoa may be used as a beverage at the morning meal. The effect of a given restricted dietary is to be noted by making careful observation of the bodily weight and of repeated tests of the functional capacity of the diseased kidney as well as of the urine and the urea and creatinin content of the blood.

In the writer's view it is no less important to the welfare of the sufferer from chronic Bright's disease that the metabolic processes be watched than to protect by an appropriate diet the chronically "sick kidney" with a view to maintaining, as far as possible, its functional equilibrium.

*Drugs.*—Drugs, while not curative, may counteract certain dangerous tendencies resulting from interference with kidney excretion. In the exudative variety, in which anemia is often pronounced and progressive, a chalybeate course from time to time is useful. In this form anasarca is also present and calls for treatment. The patient should be put to bed, where he should remain until the circulatory equilibrium is restored, while at the same time cholagogues, diuretics, and diaphoretics should be given.

Saline cathartics, exhibited after the Matthew Hay method—e.g., in concentrated solution in the early morning so as to produce two or three watery discharges daily—are useful. Mercury, in all of its forms, is to be omitted, since it has been shown that this drug has a selective affinity for the kidney and is, therefore, harmful in its effects in Bright's disease. Unfortunately, the

\*While from 80 to 100 gm. of nitrogen daily are required, it is often advisable to allow much less, even as small an amount as 5 gm. for a week or two.

custom of prescribing a mercurial preparation at intervals in this complaint, especially when edema is present, is only too common, but it should not be approved by the medical profession.

Again, one of the main aims of treatment is to spare the renal epithelium irritating substances, hence such diuretics as caffeine, theocin, sodium acetate, and other members of the purin group should be abandoned in the therapeutics of this disease. On the other hand, we may employ for their diuretic effects unirritating substances, as digitalis, and the salts of potassium, especially the citrates, either singly or in combination.

Active diaphoresis, especially if induced by means of hot-water baths, or hot, wet, or dry packs, is a potent factor in lessening dropsical transudates and the albuminuria, if persistently carried forward at intervals of twelve or twenty-four hours.

In cases in which the renal lesions have not reached an advanced stage, the writer has observed excellent results from a course of the hot Nauheim baths, which markedly enhance elimination through the skin and kidneys.

The Karell diet or the Karell cure is warmly advocated by Goodman<sup>6</sup> and others. The technique is simple: "The patient receives daily at 8 and 12 a.m., and at 4 and 8 p.m., 200 Cc. of raw or boiled milk, warm or cold, according to taste." If great complaint is made, because of thirst, the patient may be allowed to rinse out his mouth with water, with instructions, however, that none be swallowed. It is customary to continue this strict diet in cases of renal edema for a period of one week, after which it may be gradually relaxed.

No aspect of the therapeutics of Bright's disease has engaged the attention of the profession to so great a degree as that of the associated hypertension. The lesson has not been learned as yet, when active interference with this oftentimes compensatory mechanism should be commenced. It is to be recollected that while high systolic and diastolic blood-pressure is a constant symptom of chronic interstitial nephritis, if we expect the arteriosclerotic kidney of the aged, the inflammatory parenchymatous form, so long as it is compensated, exhibits no increase of blood-pressure.

Says Engel,<sup>7</sup> the theory that ascribes nephritic hypertension to the chronic parenchymatous variety of renal diseases rests upon confounding it with cardiae hypertension. In approaching the question of the management of the hypertension, it is well to keep in remembrance that in the renal type of hypertension, including evidences of damage to the vascular system, an unfavorable prog-

nosis appears to depend, as pointed out by Stone, upon the height of the diastolic pressure, to which rather than to the systolic our closest attention should be given, since it should form a guide to aid our efforts to reduce high tension. In view of the presence of a greatly increased diastolic pressure, myocardial exhaustion supervenes, resulting in decreased urinary output, and symptoms due to increased retention of urea, leading in some cases at least to a fatal termination.

On the other hand, cerebral deaths, due to the greatly augmented diastolic pressure, are more common than myocardial deaths. It follows as a natural corollary that by a reduction of the high diastolic pressure we not only relieve such features as headache, vertigo, and so-called renal asthma, but also and more importantly, rupture of the cerebral arteries—an accident that often terminates life abruptly. This indication is to be met by the cautious use of nitro-glycerine in ascending doses, beginning with 1 minim every three hours. In this manner we also relieve the heart of a serious strain, which is the result of a greatly increased tension and may lead to myocardial exhaustion.

My experience of the use of hot baths, in selected cases, accords with that of Rowntree,<sup>8</sup> who states that a drop of 10 to 20 mm. often persists some time after a hot bath that results in a good sweat.

While affording therapeutic assistance to meet high tension, the effects upon the heart, the urinary output, and the urea and creatinin content of the blood must be noted. A too great reduction of the arterial tension, a prevalent mistake, is undesirable, being attended with danger of uremia and serous transudates owing to insufficient urinary excretion.

Myocardial exhaustion, which manifests itself in the terminal stage of cirrhotic kidney, with signs of cardiac dilatation, scanty albuminous urine and anasarca, requires heart tonics and stimulants. Here digitalis has good effects; it improves the myocardial tonus and often decidedly increases the urinary output, both as to fluids and solids, for a season at least. With the digitalis a small dose of nitro-glycerine may be combined if the peripheral tension be high.

If, despite the treatment described above, definite uremic manifestations, more particularly vomiting, muscular twitching, convulsions, or coma supervene, vigorous measures are to be resorted to with all possible expedition. Starvation for two or three days is advisable. Prompt venesection followed by the use of normal

salt solution given subcutaneously, 500 to 1,000 Cc., as recommended by Herrick,<sup>9</sup> often gives much temporary relief.

The writer has observed good effects from the subsequent employment of the Murphy drop method of administering this solution, preceded by colonic flushing. Free catharsis and active dia-phoresis must be secured in the manner above described.

Inhalation of chloroform, or what is often a useful and, the writer believes, an essential measure, the hypodermic injection of morphine, is to be employed, in doses of from gr. 1/6 to 1/4, and repeated according to the indications of the particular case. White and Wilcox<sup>10</sup> have shown that morphine does good in Bright's disease, by diminishing the oxidizing functions of the body metabolism. The late Dr. LeFevre lauded chloral, and the writer has observed gratifying results from its use in half-drachm dosage thrown into the rectum at intervals as required.

Time and space do not permit of a full presentation of the treatment of all complicating conditions and symptoms in chronic Bright's disease, but those omitted from consideration here must receive attention in accordance with accepted therapeutic principles.

*Kidney Organotherapy.*—This method of treatment has recently received considerable attention, but it has not had vogue long enough to permit of a proper appreciation of its value. Sajous<sup>11</sup> claims that favorable results have been reported in about one-half of the cases of chronic nephritis in which kidney preparations have been tried. One may use a maceration as have Page and Dardelin,<sup>12</sup> or more conveniently a tablet known as nephritin, prepared in this country by Reid and Carnrick. The dose of the latter is ten to fifteen 5-grain tablets daily, preferably given between meals. Kidney preparations produce several effects, of which the chief are three: (a) The prevention of uremia; (b) a reduction in the percentage of albumin; and (c) increased diuresis. It is not improbable that nephritin and other kidney preparations owe their stimulating effect upon the urinary output and their antitoxic power to an adrenal principle in organic combination.

Salvarsan has yielded encouraging results in cases of syphilitic origin. Perhaps the only prerequisite to a fair degree of success in the use of salvarsan or neosalvarsan is the selection of cases in the earlier stages of this form of nephritis, since no drug "can possibly restore destroyed renal parenchyma or transform fibrous connective tissue into secreting kidney cells."<sup>13</sup>

*Surgical Treatment.*—The percentage of cases in which surgery—i.e., incision of the capsule or cleavage of the cortex—serves a useful purpose is probably small, and it is gratifying to note that the ardent advocates of these operative procedures are far less numerous than they were a single decade ago. It is conceivable that a splitting of the capsule or mere puncture of the same will diminish normal tension and thus relieve pain which may be present. Moreover, for hematuria, or particularly if practically limited to one side, “the operation should be recommended, as it has been frequently followed by cessation of the hemorrhage in chronic Bright's disease” (Newman<sup>14</sup>).

As a rule, the good effects of operation are only temporary, the result of an improved circulation which, however, cannot be long maintained. Surgical methods cannot modify the nature and progressive character of a chronic nephritis, cannot arrest nor even appreciably retard the renal and arterial fibrosis and their mechanical consequences. Finally, no form of treatment is, in a real sense of the word, curative that has not for its main aim an amelioration of the toxemic condition present and the removal of etiological factors in particular cases.

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# Dominion Medical Monthly

And Ontario Medical Journal

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Published on the 20th of each month for the succeeding month. Address all Communications and make all Cheques, Post Office Orders and Postal Notes payable to the Publisher, GEORGE ELLIOTT, 219 Spadina Road, Toronto, Canada.

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Vol. XLIX.

TORONTO, DECEMBER, 1917

No. 6

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## COMMENT FROM MONTH TO MONTH

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**Food Conservation** has come to constitute one of the elements of patriotism. More than ever before must physicians be familiar with foods, diets, the essentials as to the daily intake of protein, fat, and carbohydrates; for the stress of the times demands radical changes in the dietaries of all.

Lord Rhondda has said that there is great danger of the soldiers going hungry in the spring of 1918 unless earnest conservation be practised, particularly in wheat, beef, bacon and cheese. What are we going to do about it? Are we simply going to ask ourselves: What can I do to help? and then do no helping. Are we going to volunteer to help in this direction when we are compelling men to go to fight? Or, are we going to ask to be compelled to help?

The Food Controller is appointed primarily to see that the soldier gets good and enough food. When the Food Controller suggests some line of conduct, that should be enough for us. Instead, we appear to be more concerned that he does not keep prices from rising here or that he does not drive prices down. It may be a good thing for the soldier in the trenches that prices are high here. That keeps us from buying more. That compels us to conserve. And why cannot we in Canada, or on this side of the Atlantic, go the soldier fifty-fifty in those essentials of wheat, beef, bacon and cheese? Could we not say: I will eat

no more bacon and cheese while the war lasts. If the people of Canada cannot volunteer in that respect, then the bacon and cheese should be withdrawn from the domestic market altogether so that we could meet the soldier on the fifty-fifty basis. One class of our community life eats no bacon at any time. Would it hurt any of us, or all of us, if we followed the example of the Jews as regards bacon; and so with cheese? Both are highly concentrated foods, possessing a high energy unit value. Therefore, they are of the utmost value to the fighting man. In proportion to their strength they are the more fitted for ready transportation. We can do without both cheese and bacon, and be patriotic, and give it all to the soldier. When we do that the soldier will know that the Food Controller and the people mean business. If we compel the soldier to fight, the rest of us should be compelled to see that he gets the right kind of fighting material.

Nor should the people on this side the Atlantic, or the non-combatants in any of the allied countries, rush to the other two, wheat and beef. They should be prepared to conserve in those two essentials of the soldiers' life. Bread is truly the staff of life and it is required as the basic principle in every man, woman, and child's ration. We must be prepared to divide willingly with the men at the front. How necessary is it, therefore, for medical men to know the caloric value of all foods at the present time so that he may advise those with whom he comes in contact daily as to when they shall eat, how they shall eat, and what they shall eat!

We cannot expect all to learn the caloric, or energy unit values of all foodstuffs, but no doubt it can be brought home to them in a practical way, to so govern their breakfast, luncheon or dinner, dinner or supper, that the necessary caloric amounts will be secured for protein, fat, and carbohydrates for each in his or her particular vocation or life.

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Dr. James S. Sprague, of Belleville, Ont., was unanimously named Honorary Member of the Medico-Legal Society of New York City at its meeting October 31st, 1917. This society was incorporated in 1868, and is the second oldest one in the world. The distinguished writer, Dr. T. D. Crothers, Hartford, Conn., is President, and it was he who proposed Dr. Sprague for Honorary Membership—a marked honor to one who has been a contributor to the columns of *Dominion Medical Monthly* for many years, and who is now in his 73rd year.

## Reviews

*Catechism Series*—Pathology, Part IV. Second edition. Edinburgh: E. & S. Livingstone.

These catechism series are great help to students.

Under different headings questions are asked and answers given categorically. There are quite a number of illustrations.

*Surgery*—Part V. Third edition. Edinburgh: E. & S. Livingstone.

This part of the catechism series on Surgery deals with Diseases of Muscles; the balance, the larger part of the manual, being given over to affections of the alimentary canal. It is bright, concise, and will please the medical student.

*International Clinics*. Vol. III. Twenty-seventh series, 1917. Philadelphia and London: J. B. Lippincott Company. Canadian branch: Unity Building, Montreal.

Ten clinics of the utmost practical character add materially to the value of this volume. There are three articles on Medicine—two on Treatment; one on Public Health; three on Neurology; five on Surgery. The illustrations are numerous, and there is one colored plate.

*A Text-Book of Pathology*. By WILLIAM G. MACCALLUM, M.D., Professor of Pathology in the College of Physicians and Surgeons, Columbia University, New York City. Octavo volume of 1,085 pages, with 575 original illustrations. Philadelphia and London: W. B. Saunders Company, 1916. Cloth, \$7.50 net. Canadian agents: The J. F. Hartz Co., Limited, Toronto, Ontario, Canada.

This book represents the course given to the medical students of the College of Physicians and Surgeons. There are several colored plates and very many illustrations which will be sure to highly please the student. Diseases are discussed on the basis of etiology. At first there are a few chapters on general working principles. After that the book is divided into chapters dealing with various types of injuries, and their immediate and remote effects. Tumors have an extended discussion spread over several

closing chapters. That which adds to the originality and value of the book is the splendid array of illustrations, almost entirely new and from the laboratory of the College. The bibliography is most complete, so that anyone interested in special subjects may be able to delve amongst the modern expositions thereupon. The book will appeal to medical men and students alike.

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*The Surgical Clinics of Chicago.* Volume I, Number V (October 1917). Octavo of 214 pages, 84 illustrations. Philadelphia and London: W. B. Saunders Company, 1917. Published bi-monthly; price per year, paper, \$10.00; cloth, \$14.00.

Several leading surgeons of America contribute to this volume, including Albert J. Ochsner, Bevan, Carl Beck, and Eisendrath. The number is of infinite interest and value to the surgeon. There are many illustrations, including several X-ray photos.

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#### **OPENING OF THE CONNAUGHT LABORATORIES, UNIVERSITY OF TORONTO, AND ANNOUNCEMENT OF ESTABLISHMENT OF A RESEARCH FOUNDATION IN PREVENTIVE MEDICINE**

On Thursday, October 25th, the Connaught Laboratories of the University of Toronto, and a farm of fifty acres, were formally presented by Colonel Albert Gooderham to the University of Toronto, and at the same time officially opened by the Governor-General, the Duke of Devonshire. The value of the gift is about seventy-five thousand dollars. The laboratories are to be used for the purpose of research in Preventive Medicine and for the production of serums and vaccines. Sir William Hearst, the Premier of Ontario, at the opening, announced that a grant of seventy-five thousand dollars would be authorized at the next session of the legislature, to establish a research foundation in Preventive Medicine. The income from this and also from an additional twenty-five thousand dollars will be used for research only, the laboratories being self-supporting. This is the first endowment of research in Preventive Medicine in Canada. In connection with the official opening of the laboratories, a lecture was delivered in Convocation Hall, on the same evening, by Dr. Simon Flexner, Director of the Rockefeller Institute for Medical Research, on the war activities of the Rockefeller Institute. A very distinguished audience, including His Excellency, the Governor-General and His Honour the Lieutenant-Governor, attended this most interesting and able lecture.

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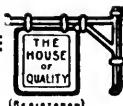
## FLAVINE

In a collective abstract, published in the September issue of the *Interstate*, the work of Browning and his collaborators on the new dyestuff antiseptics flavine and proflavine was epitomized. I prefaced this summary with a question as to what would be the attitude of the "physiological" school toward these discoveries. The answer came quickly in the form of an article by Fleming, published in the *Lancet* of September 1, 1917. This was followed by an amusing, if not very discreet, reply from Browning, published on September 15 in the same periodical. Fortunately the personal element involved in the controversy is not present in an article by Hewlett on the same subject and covering very much the same ground as Fleming's article, and which was published in the *Lancet* of September 29. The result of reading these articles is simply to fortify the impression that a new method of standardization for antiseptics to be applied in wound therapy is urgently necessary, and, incidentally, to confirm much of what Emery has said in the paper reviewed in the above-mentioned abstract.

Browning's results are not directly challenged, but only his deductions. It will be remembered that he stated that flavine, in the presence of serum, was germicidal in concentrations in which it was innocuous to leukocytes. This contention is traversed by his critics. The latter state that Browning's technie is fallacious in that, while he subjects the test organism to the action of flavine for twenty-four hours at 37° C., he submits the leukocyte to the same action for only two hours. They argue that, as the maximum germicidal power is not developed in two hours, the same is also true of the injurious effect of flavine upon the leukocytes.

If this concluded the matter, it would be indeed an almost fatal setback to the hopes of those who have built on flavine and proflavine. But, as I see it, there is still something to be cleared up, and that is the question how long does a leukocyte require to live in a wound before it accomplishes its task?

To sum up, it would appear that Emery's method of heavy inoculations in reconstituted blood is the best so far devised for the testing of the therapeutic value of antiseptics, and that a research is necessary to determine the time element which should rule the determination of the injurious action of antiseptics upon leukocytes. One important point remains which has not been disputed, and that is that in flavine and proflavine we have two antiseptics whose action is enhanced by the presence of serum.—*Interstate Medical Journal*.



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## News Items

Dr. J. Gordon Gailie has resumed practice in Toronto after service abroad.

Dr. Brefnecy O'Reilly, Toronto, has gone to Texas with the Aviation Corps as medical officer.

Captains Charles Temple and William J. Clark, Toronto, are home from hospital work in England.

Major Harvey Todd, Toronto, who has been overseas three years, has returned to Canada and is located in Quebec City.

Major W. Harley Smith, Toronto, who is home for a short furlough, will shortly return to England, and will most likely be assigned to duty in a hospital in France.

Lieutenant-Colonel Charles H. Gilmour, Toronto, is now Surgeon-in-Chief to the Orpington Hospital, England, Lieutenant-Colonel W. J. O. Malloch, Toronto, having been transferred to Basingstoke.

Dr. S. Hawden, who has been in charge of the Dominion Government laboratory at Agassiz, B.C., has been appointed Dominion Pathologist in succession to Dr. C. H. Higgins, who has retired to enter business.

A Convalescent Home is announced for London, Ontario, under the Military Hospitals Commission. Provision will be made at once for three hundred beds, with capacity for expansion to six hundred beds or more as required.

Dr. George C. Livingstone, who for the past year has been Assistant Superintendent of the Toronto General Hospital, has resigned, and has offered his services for overseas. He will be attached to Exhibition Camp for a time.

Lieutenant-Colonels Irving H. Cameron, Clarence L. Starr and Major Don. Macgillivray, Toronto; Lieutenant-Colonel J. D. Courtenay, Ottawa; and Dr. Wilson, X-ray expert, Montreal, are making a tour of inspection of the Military Hospitals of Canada.

The Commissioner of Finance and the Medical Officer of Health, of Toronto, have recommended a grant of \$50,000 to the Toronto General Hospital, conditional on the Ontario Government giving \$25,000; a grant of \$11,182 to the Western Hospital; \$40,000 to Hospital for Consumptives at Weston; Hospital for Sick Children, \$38,313. A grant to the Women's College Hospital was deferred, as the money was to be used for a new wing.

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THE CATHETER.—The catheter unskillfully or carelessly employed is a dangerous instrument, and before its use it is better, where there is retention of urine, to resort to all palliative measures first, as hot sitz baths, suppositories of belladonna and opium, hot rectal injections and colonic flushings, and to the administration of sanmetto in teaspoonful doses every hour for the first three or four hours and then every two hours until reasonable time for relief. Never withdraw the entire amount of urine at once, as it might be followed by hemorrhage from the bladder or kidneys or a complete suppression of urine, ending fatally. Always follow urethral or bladder instrumentation with irrigation or injections of the milder silver salts, and the administration of sanmetto to soothe and relieve the irritation or inflammation of the urinary canal.

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ANNOUNCEMENT TO PHYSICIANS, PUBLIC HEALTH AND SOCIAL WORKERS OF THE UNITED STATES AND CANADA.—The Metropolitan Life Insurance Company invites physicians, public health and social workers to make use of its valuable collection of mortality statistics.

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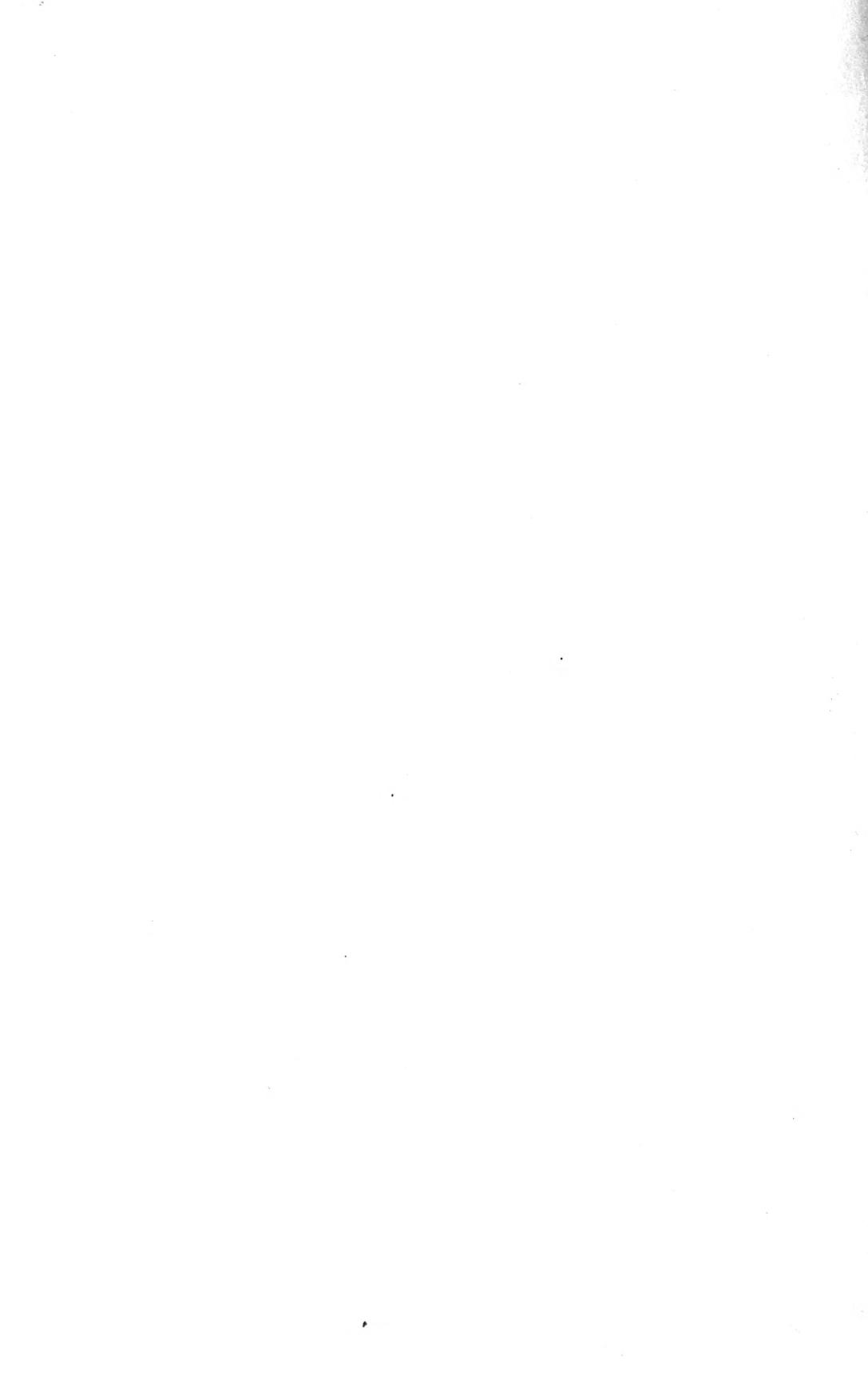
The company hopes in this way to aid in the study of disease and disability among wage-earners. It desires to stimulate medical investigation and research. By offering these statistics to the medical profession and to public health and social workers, the company expresses also its appreciation of the co-operation which it has received from physicians and others who have replied to inquiries and have given detailed information in thousands of cases. This assistance has helped to make the statistics more accurate and valuable.

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